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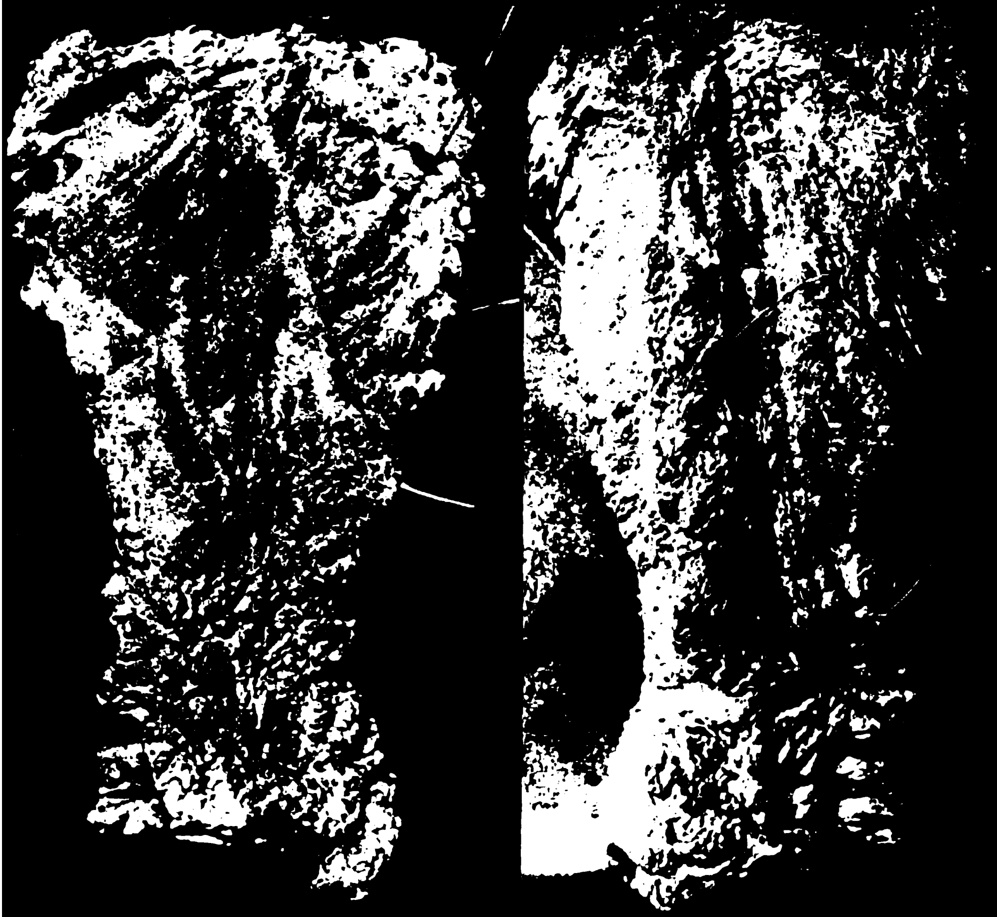

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THE JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES.

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VETERINARIANS AS SANITARIANS.[1]

BY CLAUDE D. MORRIS,
PAWLING, N. Y.

"TIME and experience test the works of man, and the highway of progress is covered with the fragments of countless inventions. The creeds, the dogmas, the social relations of one age become the bywords or the antique curiosities of the next. Men do what they can, and coming generations pardon their errors, but judge their work as they ought. What is good lives, what is bad dies. This is the general rule." We are living in an age that demands of every man the best fruits of his mental and physical energies to meet the exigency of the times. The closing years of the nineteenth century are the ripening stage of the greatest minds that have ever lived—the abundant fruition of the strongest hand that holds the pen or the mechanic's tool. As the months roll by responsibilities multiply upon the shoulders of those who think and work the hardest in the ranks of the professional, architectural, and scientific classes. The struggle is to reach the high peak of human endeavor. Never before have such auspicious opportunities for usefulness and preferment among its members been laid upon the threshold of our profession as lies there to-day. The man of ability and thoughtfulness readily appreciates the situation who with willing hands grasps the rough material fresh from the sources of inexhaustible supply in the professional field, to mould and to polish the roughened stone into a character of usefulness, beauty, and perpetuity. A profession that within a short time has been looked upon with an air of disdain and ridicule by men in other professions is now beginning to be recognized and accepted as a factor beneficent in the great problem of social economy. Thus it is that which has been accepted in the past as the acme in the science has served its purpose well, but the onward tread of the wheels of progress refuses to accept as an integral the skill of the past; but, on the other hand, is demanding at the hands of the learned the last deductions of the best products of their work. Civilization is gaining friends hourly and enlarging its borders daily. It is utilizing forces that heretofore were latent; that which in the past was refused is now material of usefulness and adornment. As individual members of the veterinary profession we find ourselves to-day in the midst of momentous duties. Responsibilities which are not altogether new, but are forced to the front, demanding a solution as one of the problems incident in our Commonwealth. The question of sanitary science and its practical application by the profession is confronting us with irresistible force. In no small degree are the health and wealth of the Empire State dependent upon our ability and energy. Are we equal to the emergency? The results of our professional career can best answer the question. The consumers of animal flesh and of dairy products are largely at the mercy of the tradesman, with the exception of a few firms, whose sense of honor and justice in their business relations with the public is based on the broad principle of dealing with others as they should like to be dealt with. It is to this class of business men and to veterinarians that the millions in our State who daily consume flesh and dairy products can only depend upon as the proper persons to protect their table from unwholesome foods. The competition in the manufacture and sale of food-products is exceedingly spirited these days. This rivalry does not always tend to increase the merit of the article. The spread of disease among animals themselves, the many avenues by which disease is transmitted from the lower animals to mankind, and its eradication, are questions all of which require a solution at our hands.

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[1] Read before the New York State Veterinary Medical Association, September 8, 1896.

There is no one article of food so universal in use as that of milk. Its composition possesses all the elements necessary for primary growth; it is the initial and only food for the newborn, and continues as such for months. One of its physical characteristics is its susceptibility to untoward influences. It will receive and convey the odor of its surroundings. The unpleasant flavor of certain vegetables, sour or fermentative foods which the cow may eat, are readily detected in the milk; and of all food that reaches our table none possesses a more genial habitation for nearly all forms of bacteria as milk. Not a year passes but that we have living proof of the communicability of disease from various sources through the medium of milk. Diseases that are not wholly infantile, but attack all ages in man. Not only has it been proven that certain diseases incident to the bovine family have been carried through milk to man, but that diseases wholly allied to man have been transmitted through milk. Thus this medium is open to a double source of infectiousness; of the two sources of infection we find that in man lies the greater evil of the two. Aside from bovine phthisis there are but few diseases of frequency in that family considered dangerous and liable to transmission through the products of the dairy, but in man we have a number of infectious diseases which can be transmitted through this medium. Whether tuberculosis in man has its essential source in the bovine family or not, there are, however, certain conditions of the disease in the animal which seem even on the surface to be inimical to health, and when considered upon the ground of its possible relation and potency toward creating the disease in man there is at once of itself a wall of defence very difficult to destroy. The Massachusetts Society for Promoting Agriculture, after making 121 microscopical examinations of milk taken from 36 cows on nineteen different occasions, found that the tubercle bacilli actually existed in the milk of 33 per cent. of the animals examined, and that the animals were actually affected with tuberculosis; that the udder was free from the disease, which was proven in all cases by careful post-mortem examinations. The animals selected for this test were known to have the disease, the object of the test being to prove whether or not the bacilli actually existed in milk taken from animals which had the disease in parts other than the udder. On the other hand, we have intimated that by man milk is environed with conditions which lay it open to serious and fatal consequences ere it reaches the consumer's table. The wonder is it is not more so. A daily food so well calculated by constituents to be a suitable abiding-place for germ-life which develops and multiplies indefinitely requires more than ordinary attention while in the hands of the producer and tradesman. A glance at the records, the frequent press accounts of the spread of infectious disease, prove beyond contradiction the value of the assertion. There are many cases on record in which there is undeniable proof of the spread of typhoid fever, diphtheria, and many forms of enteric disease through this medium alone. We beg to cite one prominent case which excited more than local interest, occurring in the village of Stamford, Conn., a year ago last April. Typhoid fever began to appear during the early part of the month. No special significance was attached to its invasion, as at that time but a few cases had developed; but before the month was gone 209 cases had been reported to the health officers. In the meantime diligent search was on foot to find by what means or avenue this intruding enemy was seeking the life and happiness of the community; and before the fell destroyer had been found and from whence it came it had as its claim 386 victims and 22 deaths. By reading a short paragraph clipped from an article on the subject published in a New York paper at the time will explain. It says: "Every one of the cases has been traced directly to a foul well in the stabling-shed of H. R. Blackham, a retail milk-dealer on Greenwich Avenue, in that part of the city known as Waterside. A map was drawn, showing the location of the typhoid cases and Blackham's delivery route. The Stamford doctors have not driven off the milkman's route in their visits. Every house with typhoid patients was a stopping-place for the milkman's horse. Dr. T. Mitchell Prudden analyzed the water from Blackham's well (which was located in the barnyard) and says: 'The number of living bacteria of various kinds in one cubic centimetre is 69,660. This number of living germs would be reasonable in sewer-water or cesspool."'

The dairy industry is a very common one in our country, and especially is this true in the vicinity of our large cities. New York City receives its supply of milk along the lines of railroads for 100 miles north, 250 miles west, and nearly 50 miles south, to say nothing of the smaller cities and villages within this radius which receive their supply also. Of this large territory in the eastern and southeastern portion of the State, nearly all of which is devoted to dairying, but a small portion is under sanitary inspection. In this field I believe we can do a great work for humanity. Impress upon the dairyman the criminality of selling milk from cows which are suffering from disease, and that the act is none the less criminal by selling the animal itself whose flesh ultimately reaches the table of some innocent consumer. A few sanitary principles should be in vogue at the dairy. Thorough cleanliness, light and ventilation of stables, pure water-supply, and wholesome foods are the essentials which should enter into the management of the dairy. We should be in touch with the health officers in our immediate locality, working together in one common cause to maintain the health of the community. This applies more especially to children and the young, whose sensitive tissues and susceptible bodies, if they reach normal maturity, are influenced greatly by the character of the food they receive. How often it is the case that the family physician can trace the enteric trouble in the babe to the milk-can, and not infrequently do we hear of a case of tubercular meningitis in the child of a family whose record is as free from the disease as if the disease never existed, and upon investigation its source is traced to the family cow or the dairy whence they had long purchased their supply. It is along this line of professional work that the veterinarian can make for himself a reputation worthy of his calling. Fellow-practitioner, has it ever occurred to you, when making professional visits among your clients, to make a thorough investigation of the cause of the disease which is under treatment with the same unremitting vigilance with which you treat it; and how multiplied are the instances at the conclusion that the unsanitary surroundings are sufficient cause for the malady? In no other way can we manifest greater professional skill than in being able to remove the cause of the disease rather than by treating it successfully, and especially will this prove true at the dairy farm, whose product is placed on the market for exchange.

Harold Ernst, on the subject of infectiousness of milk, arrives at these conclusions: 1. While the transmission of tuberculosis by milk is probably not the most important means by which the disease is propagated, it is something to be guarded against most carefully. 2. The possibility of milk from tuberculous udders containing the infectious element is undeniable. 3. With the evidence here presented, it is equally undeniable that milk from diseased cows with no appreciable lesion of the udder may and not unfrequently does contain the bacillus of the disease. Mr. President, are we imposing too much on your patience and this assembly by stating that it is our belief that we as veterinarians and sanitarians fall short in our professional duties unless we use all reasonable means to impress upon dairymen who place their product upon the market the necessity of as perfect sanitary conditions as is possible to maintain; and especially, whenever it comes to our notice that milk is offered for sale from cows in an unhealthy condition of body, to use our best endeavor to have them removed from the herd or report the case to the health officer? Neither should milk be sold from dairies in which certain diseases incident to the human family are prevalent and associated with the dairy. Diseases which should bar the dairy product from sale are typhoid fever, diphtheria, pulmonary phthisis, croup, scarlet fever, common measles, German measles, smallpox, erysipelas, and syphilis. There is room for much reform in the dairy sections of our State; and who among the scientists is better qualified to perform so important a public function than the veterinarian.

I will not go into the details of the dairy, which are many and complex, aside from what has already been said as to cleanliness. The method to be pursued and the material used are quite essential. A thorough sweeping down of the walls and ceilings of the stables twice a year, spring and fall, then applying a rich coat of whitewash and carbolic, which is both a disinfectant and parasiticide; the maintaining of water-tight floors and gutters, so that all the excreta can be moved without finding lodgement beneath the floors; with good dainage in the yards; also no wells in the vicinity of the yards; and during the months in which the cows are stabled they should be groomed daily, for the purpose of removing particles of stable-dirt and their own excrement, which is very liable to find its way into the milk-pail, thus becoming a source of contamination. It may seem needless to state that as soon as the milk is drawn from the cow it should be cooled to a temperature of at least 60° F. and kept in an atmosphere free from all odors or contaminating influences of whatever nature until it is ready to be taken to market. We believe that as the result of carelessness and ignorance on the part of some dairymen premature graves have been dug for children; that the bright hope of their maturity, which was twin in the breast of the parent at their birth, has been broken and ran away in bitter tears. If the wealth of a nation lies in the character of the extent of area, in its hidden resource of priceless material and its commerce, then its greatness lies in the character of its human flesh. A strong arm and a sane brain are necessary to lay the foundations of true greatness, and it is in the newly-born babe where these conditions begin.

The question of a final disposition of neat cattle when suffering with disease of a contagious and infectious nature among themselves and capable of transmission to man becomes a matter of vital importance in its relation to public health. The profession should be a unit on this question as best calculated by experience and knowledge to direct the public mind in this very important question, affecting as it does the health and wealth of the nation. What should be done with an actinomycotic animal? Learned men in the profession differ as to the contagious character of the disease, except among bovine animals, and I believe this is disputed by some; the origin of the fungus, if of vegetation, and what relation does it bear to the animal; if by contact through abrasion of the skin or by alimentation, then why not man contract the disease from the same source independently of the animal? However diversified opinion may regard this disease, is it not well to give the doubt the preference? We would not be understood as sentimental, but believe there are occasions when intuitive knowledge or science or, more plainly put, instinct, is to be relied upon when doubt and ignorance abound. What man possessing a cultured sensibility, to say nothing of professional knowledge in medical science, can make himself believe that the flesh of a diseased carcass is a sweet morsel of food? Though it be only localized, receiving its supply of blood from the systemic circulation, giving off its effete material in the form of a ptomaïne, to be partially eliminated through the process of arterialization in the lungs; and then again the remaining portion penetrating to all parts of the body, availing itself of every opportunity for lodgement in the tissues; though attentuated in vital form, it must in time make general the same disease that to outward appearance seems only local. The question of economy should be subordinate to that of health. Therefore, we cannot admit that even thorough cooking is a sufficient guarantee that the meat is properly sterilized. It has been shown by recent investigation that in many diseases it is not the characteristic bacilli of the disease which produce the toxic infection, manifesting the symptoms of the disease, but that it is a subproduct, the result of the dead bodies of bacteria, a ptomaïne, a soluble alkaloid, readily absorbed, capable of producing septic intoxication. Nearly all authorities are agreed that the bacilli present in the blood of tetanic patients are few, and in animals in which the disease was produced artificially the blood was often found sterile, the microbes being found at the seat of the primary infection, and in the tissues between it and the spinal cord, and in the blood itself. We must then conclude that the laboratory from whence the ptomaïnes come are the tissues in which localization takes place; and it differs not whether the disease is local or general if of importance and contagious in its nature, the blood and the tissues possess "the septic intoxication which is carried by the presence of dead tissue in the body in a state of putrefaction, from the presence of putrefactive bacilli, and that the immediate cause of the intoxication is the absorption of pre-formed ptomaïnes from such a local focus of putrefaction."

Are we justified, in the light of present knowledge touching so important a question, to assent by silence to the sale of a food-product contrary to revealed knowledge? Or if, on the other hand, our busy life hinders personal investigation, that we may know from experience these facts, are we to doubt the result of investigation made by others who have investigated? When human life and happiness hinge on any one question too much is at stake to admit of theory, long drawn-out deductions, and hair-splitting conclusions to prove that under such and such conditions certain agencies and elements are harmless. No; better things are expected of us. We are in a position to lead and become the sanitarians of our time.

The transmission of disease by clinics, manifesting itself in typical form in other patients remote from the seat of infection, which, at the time being, are suffering slightly from some form of enzootic disease or are to undergo some ordinary operation, is of sufficient importance to engage attention in our daily practice. Its influence relative to the commercial value of the lower animals is too significant to admit of casual treatment, the operator acting as the medium by which the infection is conveyed. I will cite two cases, one in which the present speaker was the medium of transmission in one case and the other a regular practising physician. In the spring of 1891 we were treating a case of tetanus in a filly two years old. She and her brother, one year old, were running together in an open shed. They were separated by putting a partition through the enclosure. After the filly recovered the owner wanted the horse colt castrated. This was done by the usual method of casting the animal, removing the testicles, with no bad results following. One week later we were called upon to castrate another colt five miles distant from the farm where tetanus had existed, using the same casting rig. In this case I ligatured the spermatic artery with sterilized catgut. The colt apparently did well until about one week later, when the owner reported that something was wrong with the colt and wished I would go out and examine him. As soon as I saw the colt the symptoms presented like an open book portraying the trouble. It was tetanus in all its agony. Without going into details, which I afterward did to prove whence came the germs of the disease, we will conclude the clinic by stating the fact that the bacilli of tetanus were on the ropes and straps of the throwing-rig, and the disease thus conveyed to the wound of the scrotum. After relating this incident to a physician of large experience he unbosomed a like circumstance in his own practice. He was treating a case of peritonitis which was the result of a wound in the lower third of the abdomen, the wound presenting septic symptoms. One day after dressing the wound he was called to a case of midwifery, in a woman enjoying ideal health; delivery occasioned slight lacerations, labor lasting only three hours. The third day he noticed evidences of inflammation in the parts, extending to the mucous membrane of the vagina. Again, without going into details, which he related, the doctor was satisfied that by his hand he had transmitted the germ of sepsis to a healthy person.

Surgical sanitation means more than ordinary cleanliness. It means perfect sterilization of hands and instruments. In a diversified practice this danger is more eminent, as it brings in contact with the medium a greater number of avenues through which to spread infection. A few months ago we were called to see a case that upon examination proved to be glanders, which was under treatment by an empiric who did not recognize the disease. He also had under treatment at the same place the favorite cat, suffering with a lacerated wound of the arm. Strange to say that in nine days this cat had developed the disease sufficiently to make diagnosis easy. Herein lies the danger, and how often it comes to the surface in practice. The patient apparently doing well; soon we observe complications which are hard to account for, they are absent in the literature of the disease; if, then, these symptoms are not the natural sequel, what are they? Experience tends to confirm the belief that too often we are the medium conveying the germs of disease.

The needs in the profession to-day are closer attention to sanitary principles governing the treatment of disease as well as the prevention of disease. Preventive measures should be based upon pathology—the influences of inheritance. The transmission of functional peculiarity associated with this inheritance of soil and the transmission from parent to offspring of certain conditions, apparently pertaining to the tissues and predisposing to disease are questions for concern as vital as the treatment of disease when precipitated. We can no longer cast aside the necessity of the hour. We are in the field of activity; we must perform. It becomes us, therefore, to do our part well, take on the harness of rich opportunity, toil for the benefit of our race, and at the end of labor reap reward.

Chloral hydrate and bromide of potash combined in watery solution gives excellent results in controlling epileptiform seizures in dogs that so often arise from intestinal irritation. A generous dose of sweet or castor oil in the interim of attacks is of advantage.

ACETANILID (OR ANTIFEBRIN).[1]

By F. S. Allen, M.D., D.V.S.,
PHILADELPHIA.

Acetanilid was first employed in medicine by Cahn and Hepp. It is a white, crystalline substance readily soluble in water. When taken into the mouth it causes a slight burning sensation. It is almost if not quite tasteless, and therefore is not disagreeable to take. Dr. Wood describes it as bitter and piquant in taste. Acetanilid has long been known to chemists, and is the product of action of glacial acetic acid upon anilin. Antifebrin is a name given to this drug by a certain firm having exclusive control of all manufactured and sold under that name. Antifebrin commands a higher price. Therefore, in prescription-writing we should write for acetanilid as a matter of economy, since it gives equally good results.

Drs. Hare and Wood, of Philadelphia, have conducted numerous experiments, both physiologically and clinically, with this drug, and from their published works I have drawn much of the material for this paper.

Physiological action. 1. Upon the nervous system acetanilid acts as a sedative, quieting the sensory portions of the nerves and spinal cord. In large, poisonous doses it produces anæsthesia, a total loss of reflex action, and motor and sensory paralysis. Dr. Hare claims that the sensory side of the spinal cord and sensory nerves are first affected, and later the motor apparatus, and that the muscles are influenced by the poison only indirectly.

2. On the circulation it has but little effect, unless used in large and poisonous doses. In such cases there is an immediate fall of arterial pressure, with a diminution in the size of pulse-wave, and all the evidence of cardiac and circulatory depression, although death is said to result from respiratory failure. The cause of this fall of blood-pressure is said to be due to its direct depressing action upon the heart, associated with its effects on the vasomotor system, as asphyxia causes no rise in pressure. In medicinal doses there may be either an increased or diminished pulse-rate. Its action upon the blood in large doses is said to be marked, causing it to become brownish-red in color, decreasing its ozonizing and

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[1] Read before the semi-annual meeting of the Pennsylvania State Veterinary Medical Association, October, 1896.

oxygen-carrying power, and finally reducing largely the hæmoglobin to methæmoglobin.

Its action upon the red blood-corpuscles is undetermined, some claiming they are disorganized, others that they are not. Dr. Hare claims that in moderately large, poisonous doses the drug does not affect the corpuscles; but if continued for some days, or if a very large dose be used at one time, corpuscular destruction occurs, free hæmoglobin appears in the urine, the normal alkalinity of the blood is lessened, and the urine becomes dark-brown in color.

3. Acetanilid given in small doses is said to have no action upon the respiration, but in large, poisonous doses it at once produces a more rapid breathing, which soon becomes labored. Death is said to result from these large doses by paralysis of the respiratory centres, and the primary causes are the alteration in the blood, the want of oxygenation of the tissues, and at the same time the depressing action of the drug itself. Baker asserts that the drug also paralyzes the peripheral motor nerves.

4. Dr. Hare claims that the drug when given in full medicinal doses lowers the normal temperature or may produce no change. In poisonous doses it produces a decrease in temperature depending on the amount employed, and may produce collapse and rigors. On fevers he claims that it acts as a powerful and fairly constant antipyretic, lowering the fever by decreasing heat-production, and increasing heat-dissipation, heat-production being the function most affected.

As to its action upon the kidney there is much dispute, but it is agreed that the excretion of urine is increased, and from excessive doses the urine becomes dark, it is said, from broken-down blood-coloring matter. Elimination takes place through the kidneys as paraphenol sulphate.

It is slightly antiseptic when used freely. I have used it but little, preferring to use others that are better, as iodoform, etc.

Toxic changes from prolonged use are claimed to occur, such as congestion of the liver, kidney, and spleen, and from poisonous doses it is said clots may be found in the cardiac cavity and a progressive decrease in the red blood-corpuscles.

Therapeutical actions. In the use of the drug much depends upon the condition of the animal and the disease from which it suffers. Although a powerful antipyretic in some diseases, it has apparently little or no action or influence upon the temperature, the duration, or general course of the disease. In some cases I have known the temperature to continue to rise when given often in full doses, and on change of treatment the temperature would fall. This was noticeable in typhoid conditions. Acetanilid, I find in sthenic fevers, is one of our most reliable drugs, reducing the temperature, and it would seem to often shorten their duration. In debilitating or asthenic diseases it has little or no effect on the temperature or general course of the disease. In these diseases, when used, there is great depression and danger of collapse. Good results are claimed from its use in rheumatism, epilepsy, gastralgia, and sciatica, etc.

(To be continued.)

BACTERIOLOGY IN ITS RELATION TO VETERINARY SCIENCE.[1]

BY M. P. RAVENAL, M.D.

IT is with more than usual pleasure that I have accepted your kind invitation to address you this evening, and have chosen as my subject "Bacteriology in its Relation to Veterinary Science."

While the names of Pasteur and Koch will always be the two foremost in this branch of science, the ranks of the veterinarians have furnished a number of men whose work has been epoch-making, and who have added much that is most useful to our knowledge. Nocard, Le Clainche, Chauveau, Strauss, Shutz, Bollinger, Kitt, Johne, Raillet, Peronchito, and Stockflett can never be forgotten, while in the rank and file of veterinary practitioners there have always been a host of earnest and intelligent workers who, though they may not have succeeded in recording brilliant individual achievements, have done noble work and have always given most generous assistance to those who have made a more special study of bacteriology. It is peculiarly fitting, therefore, that veterinarians should take especial interest in the advancement of a science they have done so much to develop.

Each year records new discoveries and opens up possibilities not dreamed of less than a generation ago. The field of preventive medicine has so far proven more productive to the veterinarian than it has to his brothers in the healing art as applied to mankind. Quarantine laws based on bacteriology have as wide a scope or wider for the former as for the latter practitioner. Time does not permit me to go into details which are as well known to you as to me, and I will only mention briefly the success which has attended preventive inoculations against anthrax, rouget du porc, chicken-cholera, rushbrand, and now known as "vaccines," following the suggestion of Pasteur, who first succeeded in producing an artificial immunity by bacteriological methods and generously proposed the adoption of the general term "vaccines" in honor of Sir Edward Jenner.

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[1] Read before the Keystone Veterinary Medical Association, Philadelphia, Pa., December 8, 1896.

Work along these lines is constantly going on in all parts of the world, and so favorable have the results been so far that we have reason to hope that in the near future efficient vaccines will be found against the great majority of diseases to which man and animals are susceptible.

In addition to those just mentioned we now have others for the cure and prevention of tetanus, diphtheria, streptococcus infection, and a certain degree of success has been obtained even against tuberculosis.

Though not strictly germane to my subject, the methods and results are so similar that I may mention also the wonderful results obtained by Calmette and Fraser in the production of immunity against the serpent venoms and the immunizing properties of the blood-serum of the immune animals, called antivenin.

These vaccines are produced by different methods, and the present imperfect understanding we have of susceptibility and immunity makes it impossible so far to have one uniform method of procedure. The nature of the disease also influences us to a certain extent. Thus, while tetanus kills by the extremely virulent toxin formed by the germ, the germ itself never being found far beyond the site of inoculation; anthrax, on the other hand, seems to kill rather by its presence in veritable myriads than by any special poison produced. In the spleen, for instance, the anthrax bacilli are often so numerous as to be more apparent than the tissues of that organ when seen under the microscope. The glomeruli of the kidney are so packed that they frequently burst, and the rods pass into the first part of the tubules. Diphtheria, like tetanus, kills by means of the toxin formed, the germs only rarely being found distributed through the blood or internal organs.

For anthrax and diphtheria we have two distinct types of vaccination, while a third is practised in inoculations against hydrophobia. The success in each has been most marked and abundant. In the first vaccines are obtained by cultivating the anthrax bacillus under conditions which decrease its virulence and make it non-spore bearing. The usual procedure is by cultivation at a temperature somewhat above that at which the germ grows best. According to the length of time to which it is subjected to this treatment, various degrees of virulence are obtained, and these modified cultures are called anthrax vaccines. Two are usually employed, the more attenuated first, followed by the stronger after a few days.

In the second disease—diphtheria—we produce a gradual immunity in an animal, the horse being the one usually selected, by subcutaneous injections of the strongest toxin we can produce by artificial culture of the bacillus, the injections being about eight days apart and the dose being doubled each time, commencing with 1 c.c. and continuing usually until the dose reaches the enormous amount of 200 c.c. During this time what we call antitoxin has been developed in the blood of the animal, and is contained in the serum, which has both therapeutic and prophylactic properties. In anthrax and diphtheria the success attained has been truly wonderful; in tetanus, in which the plan outlined for diphtheria is usually followed, the success has not been great, but through no fault of the method, the chief cause of failure being that treatment is begun too late; for when tetanic symptoms have already shown themselves the cell-destruction has gone so far that repair is impossible in the majority of instances. Professor Roux, of the Pasteur Institute, lays great stress on this point, and with Nocard advises prophylactic rather than therapeutic treatment.

The third type of vaccination, as seen in hydrophobia, consists in producing a rapid immunity by successive inoculations of the virus of the disease, which has been attenuated by exposure to the air and drying, commencing with a feebly virulent injection and ending with a strong one, the treatment being begun after inoculation by the bite of the rabid animal with a supposedly virulent virus.

A fourth type of preventive inoculation is seen in vaccination against smallpox, the occurrence of the mild disease, vaccinia, protecting against the allied but virulent and fatal disease. Not being founded on bacteriological methods, however, it need only be mentioned here in passing.

(To be continued).

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One hundred sheep inspectors have been appointed in Canada to attest to the freedom from disease of these animals in compliance with the requirements of the United States.

LYMPHANGITIS.

BY A. B. CAMPBELL, V. S.,
BERLIN, ONTARIO, CANADA.

THIS subject is old and threadbare in veterinary literature, and I predict it will be passed over by the busy veterinarian with a casual look at the heading; but I hope any who read the results of my experience noted, and whose experience corroborates the same, or if any doubt the validity of my remarks, I hope they will seize the opportunity so kindly afforded us through the columns of this JOURNAL to communicate our thoughts and experiences to each other, and set their pen to work that I may be strengthened or refuted in the views I express. I maintain that from 90 to 100 per cent. of the cases called lymphangitis are not lymphangitis, and if the lymphatics become inflamed it is only secondarily; that the majority, if not all, originate from venous obstruction or thrombus.

The symptoms laid down in our text-books are very plain, so much so that any ordinarily intelligent person reading them would have no trouble in diagnosticating a case should he meet one; but I will take those symptoms one by one and see how I can apply them to my theory. I will follow Professor Robertson, as his work is nearest at hand. He divides the symptoms into "local" and "constitutional." I will give constitutional first place, as the first factor in the causation of disease is a changed or abnormal condition of the blood, which renders it more readily coagulable.

The constitutional or general symptoms are shivering fits, elevated temperature, increased number of pulsations, with a full, tense, cord-like artery; in more severe cases the respirations become hurried, short, and catching, with impairment of appetite, etc. All these general symptoms can be accounted for as a result of the local. In the first place, the animal for some time previous to the attack is accumulating some substance into the blood or the blood is lacking of some of the elements which render it normal. At present I am not able to state the exact condition that exists, but it is doubtless that the blood is in a readily coagulable state. While the animal is at his usual work or is not called upon to perform extra exertion, nothing is noticed unless it is by a careful observer, who will notice the feces dryer, adhering more to the rectum, and the animal has not his usual spirits, is feeling kind of lazy, etc.

Then, after being in active exercise, when the action of the muscles on the valve veins of the limbs has rendered the venous circulation of the limb active, venous blood is almost completely removed from the limbs, then comes enforced rest, the animal is almost motionless, there is a stasis of the venous circulation until arterial pressure is again sufficient to continue the flow. During this period of stasis the blood held above the valves and at points where there is a dilated state of the vein coagulation commences. This point in the hind limb being in the great saphena vein, just before it takes an acute angle over the border of the sartorius muscle to enter the femoral vein. A thrombus once formed, the fibrin is continually adhering to it until the vessel is completely obstructed and the vessels below distended. It is then that our constitutional symptoms commence. The first to be noticed is a full, tense artery, caused no doubt in two ways: first, by a portion of the circulation being obstructed, disturbing the equilibrium of blood between veins and arteries; second, by nervous impulses from the distended portion of the circulation calling on the great motor centre for more power to remove the obstruction. This is simply increased heart-activity, which is the cause of elevated temperature. Now, coming to the local symptoms. I have already accounted for the sudden lameness, although in reality it comes on gradually; swelling and tenderness in the region of the inguinal or bronchial lymphatic glands. I will speak more directly of the inguinal, as we meet it more frequently in that region. From my researches it would be difficult to feel the lymphatic glands of that region if they were nodulated, as they are deeply seated, the nearest being the precrural group. The nodulated condition I find is thrombi, divided by the valves of the vessel. Swelling is the result, and it will naturally commence along the veins which are distended and gradually enlarge the whole limb as high as the level of the thrombus, where it generally terminates abruptly. The intense pain is easily enough accounted for when we consider the force that is constantly on the already distended vessel, with no channel of escape.

I have so far accounted for every symptom that at present presents itself, but if I have omitted any they are equally as easily accounted for. I will now imperfectly describe a couple of cases which came under my notice. My attention was directed strongly to this disease some time ago by a paper on this subject at one of our society meetings, the principal discussion being on the cause, and as the animal which I drive was subject to attacks I resolved to follow it closely.

CASE I.—Subject a strong, sixteen-hand bay horse; good limbs and feet well placed; bred from Chicago Volunteer; high temperament and good roadster; at present nine years old. Before coming into my hands had several attacks, and the limb was considerably enlarged, and shortly after had another acute attack, followed by an unaccountable attack of congestion of the lungs, which left a thickness of wind for several months, which would increase on being confined to the stable without plenty of fresh air. At this time I had not thought of thrombi. In February last, when applying a lotion to the inner side of the thigh, as the acute symptoms were abating, I was struck by the hard, pencil-like condition of the superficial veins radiating from the point of the great saphena vein, where it takes an abrupt turn between the muscles to empty into the femoral, at which point was a large, hard lump. I could not define what it was at first, but on careful examination and constantly watching this and other cases I satisfied myself that the veins of the vicinity were filled with thrombi, which gradually absorbed and disappeared. This animal has not had an attack since, as I use preventive measures, viz., an alterative ball about once in two or three months, with occasional small doses of pot. nit. or mag. sulph., and the limb is very little larger than normal, although eighteen months ago it was unsightly, with the skin broken in creases across the front of the hock. The thick wind yielded to treatment with Fowler's solution of arsenic, tonic powders, and cough-balls.

CASE II.—Bay horse, six years old; very similar disposition to the animal in Case I. First attack in February last. Was treating at the time the thrombi were disappearing in Case I. This took a similar course. Had a second attack in April and a third September 5th. This attack I will try to describe, although I took no notes. The animal for some time had not been chewing properly; internal parasites suspected, which on subsequent treatment were removed. The day previous to the attack had been driven until pretty tired. September 5th was standing in stable. Before noon was noticed by owner to show symptoms of the old trouble, what we called lymphangitis. I was called and I found him standing, trembling at the flank. Pulse full and about 72. Temperature 103°. Breathing heavy or increased. Anxious expression. When the hand was gently placed on the inner side of the thigh he raised the limb and almost fell over. The superficial veins were enormously distended with a large, hard lump at the angle of the great saphena. The limb was swollen all round up to the hock, and on the inner side up to the lump mentioned. I now decided to find the nature of the trouble. I inserted a needle into the distended vessel, and venous blood escaped. This satisfied me that it was the venous and not the lymphatic circulation that was impeded. I then inserted the needle into the lump, and when withdrawn a portion of the thrombus was contained in the cavity of the needle. Against my better judgment I wished to dislodge this thrombus for further proof. I applied cloths wrung from hot water and then manipulated, when the thrombus broke in several pieces and passed up with a rush of blood. The animal was immediately relieved, and the swelling abated, and after the effects of the purgative (which was administered first) were over was apparently all right.

It was then that the following dose was given for ascaris megalocephalus: One-half pint of wormwood tea; one-half pint of whiskey; one-half pint of milk; two drachms of tartar emetic. Hundreds of the parasites were passed during the next four days. Being owned by a livery keeper, was sent out on a trip in cold, wet weather, and came home suffering from pleurisy, followed by hydrothorax and death. The post-mortem revealed several pails of fluid in the thoracic cavity (although a considerable quantity had been removed), with adhesions and organization of the exudate. The pleura and mediastinum were enormously thickened with a ruptured abscess between the posterior mediastinum. Disease further advanced in right side. On examining lymphatic glands of the affected limb nothing abnormal could be found with the naked eye. In the saphena vein was found a thrombus which could be felt forming two days previous to death, about two ounces in weight. Also in each lung was found an embolus—one about four ounces and the other about two ounces in weight. Not one parasite could be found, but the walls of the small intestines were considerably thickened.

Another typical case of embolus occurred in the practice of a neighboring veterinarian, Dr. Orr, of Baden, a case to which I was called in consultation some months ago, and pronounced lymphangitis, or, in my opinion, the result of thrombus. The case improved, and about two weeks previous to death, which occurred about October 1st, showed difficulty in breathing. Veterinary aid was not called, and the animal was found dead in the pasture. Dr.

Orr held a post-mortem and showed me what he found: An embolus in right auricle about two to four ounces in weight, and two others from the pulmonary arteries from the bifurcation, each weighing as much as the one from the heart. The right kidney was of enormous size, the capsule distended and filled with gelatinous substance. The enormous mass was divided as near half as possible, and one-half was brought for me to see, and this, when put on a scale with the suprarenal capsule, which was also enlarged, weighed twenty-four pounds.

The kidney trouble I cannot well account for, as the animal was not seen previous to death, unless it was a result of the impure state of the blood occurring through pulmonary obstruction. But if such was the cause, I would expect both kidneys to be in the same condition. I may say that a portion of the affected kidney to the naked eye seemed in fairly good condition. I could not name the disease, and would like to be informed as to its nature, as I had only a lamp-light examination and my description is meagre. It appeared to me as if about one-half of the organ was changed and enlarged by straw-colored, gelatinous material taking the place of the proper kidney substance, the capsule being over the whole mass and the interconnective tissue being distinctly visible on a cut surface (weight of the kidney alone about forty-five pounds). I did not see the left kidney, but understand that it looked normal. The thought also strikes me that if this kidney trouble had been of old standing it may have caused the abnormal state of blood, which led to thrombus and subsequently the embolus, which would be the direct cause of death from asphyxia, or, more properly, a non-oxygenated state of the blood from inability to gain entrance into the lungs.

COMMUNICABLE ANIMAL DISEASES.[1]

By W. Herbert Lowe, D.V.S.,
PATERSON, N. J.,
FORMERLY UNITED STATES VETERINARY INSPECTOR OF THE PORT OF NEW YORK.

The importance of the subject of communicable and infectious diseases of animals can hardly be overestimated if we consider the money value of the animal industry of this State, including the intrinsic value of the animals themselves for their respective kinds of service; the value of a wholesome and healthy meat-production and the large dairy interests within the confines of New Jersey. But the importance of the subject does not stop here. The economic is only one side of the question, for the public health and human life itself are dependent in no small degree on the physical condition and the healthfulness of our domestic animals.

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[1] Read before the twenty-second annual meeting of the New Jersey State Sanitary Association at Lakewood, N. J., December 12, 1886.

Trichina, echinococcus, the beef and pork tapeworms, strongylus gigas, actinomycosis, and other parasites which affect man come directly from domestic animals. Glanders, rabies, anthrax, tuberculosis, and other deadly microbian diseases that affect the lower animals can also be communicated to the human family. The closest relationship and interdependence exist between communicable or infectious disease as they appear in animals and in man. Certain parasites make successive appearance in man and animals at different stages of their development, this being a condition of their propagation. The echinococcus, the beef and pork tapeworms, and even the trichina may be mentioned to illustrate this point. Our present knowledge would indicate that it is impossible for the echinococcus of the beef tænia to live in the same host or in a host of the same genus in both its larval and mature condition.

Man eats the meat and drinks the milk of the cow which may convey the seeds of consumption to himself, for the tubercle bacillus of the tuberculosis found in the cow is identical with the germ of the human being. Recent bacteriological work and discoveries have thrown great light upon the cause and mode of transmission of infectious diseases affecting men and animals. Bacteriological science is but in its infancy, but enough has been learned to settle many problems and to determine rational and practical methods in the crusade against microbian and other communicable diseases.

It is not long since we were engaged in the work of the suppression and extermination of pleuro-pneumonia contagiosa from this State and nation. It will be recalled that the disease had a foothold in certain counties of this State, and at one time bade fair to invade the whole country, threatening the animal industry of the nation, and entailing great money loss to a large part of the people. It did not take long for the people to reach legislative halls and secure proper State and national legislation for the suppression and extermination of the plague. New Jersey is so situated geographically and the animal traffic so extensive that the work of extermination became no trifling matter. Our State Board of Health was ever diligent in stamping out new outbreaks and in limiting extensions of the disease, but it was practically impossible to prevent fresh introductions of the contagion without Federal aid, which was not withheld. The work of extermination of contagious pleuro-pneumonia soon became a national question, and the professional talent and the executive ability of that distinguished veterinarian, Dr. D. E. Salmon, the Chief of the United States Bureau of Animal Industry, were equal to the occasion, and the animal wealth of the nation has been protected and that dreaded plague exterminated in the United States.

I have alluded hastily to these facts connected with the extermination of pleuro-pneumonia contagiosa in the United States to show that the people of this country are not slow to protect the wealth of the nation from an animal plague. In the matter of contagious pleuro-pneumonia it was solely a financial question, as above indicated, for no one ever heard of a human being contracting bovine contagious pleuro-pneumonia; whereas in the case of many of the other contagious animal diseases the health and the very lives of the people are endangered if proper sanitary and limiting measures are not adopted, and if safeguards are not heeded regarding the meat- and milk-supply. It is an old saying "that health is better than wealth," but it seems to me that the truth of this saying is sometimes lost sight of by our people in their enterprise and the multiplicity of their affairs.

(To be continued.)

Veterinarian Meyer, of New South Wales, in the *Breeders' Gazette*, recommends the following drench for stomach or intestinal worms in sheep: Arsenic, one ounce; potash or soda, two ounces; boiled together slowly for one hour in one gallon of water and stirred occasionally; then when cold strained and water added to make four gallons. Weaners, one fluidounce; adult sheep, one and one-half fluidounces at a dose. In aggravated cases these doses may be increased a half-ounce. Keep the sheep from water until midday, drinking water immediately afterward is apt to produce fatal results.

Canada sheep in bond may now be exported from Portland, Me., through arrangements with the Department of Agriculture, and cattle and sheep from Boston after proper examination at Island Pond and St. Albans, Vermont.

Veterinarian J. E. Rickards, in the *Veterinary Record*, highly extols carbonate of bismuth and bicarbonate of soda in cases of jaundice in canine practice. One part of the bismuth to two parts of the soda.

ABSTRACTS FROM FOREIGN JOURNALS.

UNDER THE DIRECTION OF

J. PRESTON HOSKINS, PRINCETON, N. J.

TUBERCLE-BACILLI IN THE FECES. The *Bulletin Medicale* recently published a report of a series of experiments conducted for the purpose of determining whether these bacilli are to be found alive in the excreta of cattle. A young bullock was fed a meal consisting of bread and a portion of a tuberculous lung. During the three days following portions of fecal matter were collected and investigated, both by the injection of animals and microscopical examination. Bacilli were constantly found in the feces, and out of fifteen rabbits inoculated twelve became tuberculous, showing the fecal matter of tuberculous cattle to be as infectious in character as the sputum of persons suffering from this disease.—*Modern Medicine and Bacteriological Review.*

THE INOCULABILITY OF THE TUBERCULOSIS OF MAMMIFERÆ ON THE GALLINACEÆ. Cadiot, Gilbert, and Roger have shown that the higher temperature of birds is not the principal factor in the resistance to the tuberculosis of mammiferæ. They have tried to bring about a condition of low temperature by plucking the feathers, practising partial starvation, keeping the feet in water, etc., but without satisfactory result. Daily injections of a drachm of antipyrin, three times a day, continued for three weeks, reduced the temperature from 38° to 40°—that is, to the temperature of the rodents; but the twelve fowls subject to this *régime* remained free from tuberculosis. After having cited three new cases of transmission of the tuberculosis of mammals to fowls the authors sum up the positive facts which they have obtained in this way since the beginning of their investigations: Of a total of 86 fowls, 7 have contracted human tuberculosis. The bacillus of the mammiferæ sometimes retains its original characteristics during its passage through the bird—that is to say, it is still very virulent for the cobaye (cobæa?), and cannot be applied anew to the fowl; sometimes, however, it is sensibly modified in the manner of an aviary bacillus, showing itself fitted to live anew in the bird; in one case the bacillus modified in this way preserved the faculty of taking a new lease of life in the dog—a faculty little characteristic of aviary virus. Later researches of the authors have confirmed them in their former opinion that the human and aviary bacilli are not two species, but two races of the same species which have become acclimated upon different lands, so to speak.—*Annales de Méd. Vét.*, March, 1896.

Intestinal Antisepsis by Purgation. To a healthy man whose fecal matter contained 68,000 germs per milligramme and who eliminated thus about 12,000 millions of microbes per day, Gilbert and Dominici gave a purgative composed of 15 grains of sulphate of soda and 15 grains of sulphate of magnesia. The stools emitted under its influence contained 273,253 microbes per milligramme, and the total number eliminated during the day amounted to 411,000 millions. The purgative action continuing the next day produced a diarrhœtic stool containing 55,000 germs per milligramme, in all nearly 20,000 millions. The following day the feces regained their normal character ; they contained only 1350 microbes per milligramme—in all a little more than 500 millions. The purgative had then brought about an asepsis (state of freedom from putrefaction) of the digestive canal, if not absolute, at least remarkable. The authors consider it probable that the purgation, by increasing the number of microbes in the fecal matter, increase likewise the virulence of these matters, because the microbes of the small intestine are more virulent than those of the large. If, then, the increase in the number and virulence of the intestinal microbes can occasion diarrhœa, inversely diarrhœa increases the number and virulence of the germs in the excrement. It appears to be certain that the asepsis following purgation is of only short duration. The authors had shown previously that a milk-diet is capable of bringing about an almost absolute asepsis in the digestive canal. This property of milk is owing to the fact that it is completely absorbed, leaves no residue, and furnishes no food for microbes. The action of milk is less rapid than that of purgatives, and only becomes evident at the end of five hours, but is persistent and lasts as long as the milk-diet is continued.—*Annales de Méd. Vét.*, March, 1896.

Syncope in a Dog for Five Hours as the Result of a Chloral and Morphine Mixture. A bulldog weighing 15 kilogrammes and six years old had a tumor on the right side of his nose about the size of a hickory-nut. As an anæsthetic, Mr. Pecus gave him a three-centigramme injection of morphine and administered to him an injection of 15 grains of chloral dissolved in the water of (flux) linseed. A half-hour later, as the animal was not completely insensible, he injected another centigramme of morphine. The operation was performed with the greatest facility and without any trouble due to anæsthesia, and the dog was placed on a bed in order to let him come to. Profound narcosis followed. The dog was restless, with irregular and spasmodic respiration, which stopped completely at times. After several hours the animal was revived by means of artificial respiration, drawing out the tongue and a subcutaneous injection of two milligrammes of pilocarpine and strychnine, mixed.—*Annales de Mét. Vét.*, March, 1896.

TREATMENT OF HYGROMAIN IN THE FRONT KNEES OF CATTLE. Proussier had an extended experience with this affection while he was practising in the mountain district of Père. After having tried the different common modes of treatment, such as opening the sac along its whole length, applying iodine solutions, etc., without any result, he made a small incision at the lowest point of swelling, and drew from the top to the bottom through the whole cavity a string saturated with tincture of iodine. The upper surface of the swelling he had rubbed very thoroughly. During the next few days the knee was much swollen. After that the swelling decreased from day to day. The opening in the sac was treated with antiseptic applications. The string remained, as a rule, twenty-five to thirty days, which was usually sufficient to bring about a cure.—*Schweizer Archiv für Tierheilkunde*, January and February, 1896.

POISONING OF CATTLE THROUGH A LICKING-STONE (SALT-POISONING). Horn, in the *Wochenschrift für Tierheilkunde*, states that a farmer turned his herd of cattle, consisting of 9 cows, 14 calves, and 2 oxen, out to graze one morning in the late autumn, and left them there the whole day. The troughs in the stalls were then thoroughly cleansed and filled with fresh water. A licking-stone which had been placed by the milkmaid on the edge of the troughs where the cows drank fell into the water through some accident, and during the day entirely dissolved. In the evening the cows eagerly drank the water. Toward 9 o'clock the owner heard a noise in the stable, and when he went in found one cow lying motionless on the floor. While he was killing this one a second and third cow fell, and six others acted as if they were intoxicated. An investigation made by a veterinarian during the night had the following result: Partial and full loss of consciousness on the part of the sick cows, signs of intoxication, reddening of the conjunctiva, paunch slightly swollen, contraction toward the rectum, which could easily be pressed out in the animals more severely attacked; a hardly perceptible, weak and slow pulse; both urination and evacuation hindered; no fever. Three other animals, slain during the night showed no pathological change except a slight reddening of the mucous membrane of the stomach. Four cows which had not been so severely attacked recovered slowly after six hours, but showed twice a giddy, sleepy condition. In one cow the state of intoxication lasted the next day and night, the animal finally recovering. Another cow suddenly showed complete lameness of the shoulder-muscles on the left side.—*Schweizer Archiv.* January and February, 1896.

THE CAUSE OF ADDISON'S DISEASE. Since this malady was first clearly defined as a pathological entity its cause has continued a mystery; but the problem of its causation seems to have been recently solved by a discovery made at the Pathological Institute of Berlin, viz., that a brown-coloring matter known as pyrocatechin or brenzcatechin is secreted or formed by the suprarenal capsules. Its production is confined to the medullary substance of the glands. This peculiar substance quickly turns brown by contact with the air, which explains the brown pigment present in Addison's disease. Investigation of its properties shows the pyrocatechin to be a poison, which leads to the natural conclusion that it may be responsible not only for the pigmentation present in Addison's disease, but for the other symptoms characteristic of this malady.—*Mod. Med. and Bacteriological Review.*

PROFESSOR VON KOLLIKEE recommends a new preparation derived from iodoform and paraldehyde, and known as iodoformin, as a substitute for iodoform. It is odorless; it can be sterilized by heat, and does not produce eczema from irritation of the tissues.—*Ibid.*

E. BAUMANN has recently shown that the thyroid gland contains iodine. His experiments led him to suspect that in diseased conditions this gland contains less iodine than in a normal state.—*Ibid.*

SELIGSON states that if the right ovary is removed from a rabbit the animal bears afterward only female young, while if the left ovary is removed the animal bears only male young. In nineteen cases of tubal pregnancy the fœtus when found upon the right side was a male, when upon the left side always a female.—*Ibid.*

MARSHALL recommends dipping instruments, after cleansing, in 20 per cent. solution of bicarbonate of soda and alcohol. It is stated that steel, iron, and copper instruments may be kept bright in this way.—*Ibid.*

MM. GILBERT and ROGER'S experiments recently published show conclusively that the tuberculosis of human beings and of birds is one and the same disease. Observations made by Cadiot and Strauss also confirm this fact.—*Ibid.*

DR. CHARRIN has recently reported to the Biological Society of Paris some observations made by Dr. Pettit which go to confirm, what has previously been believed, that at least one of the functions of suprarenal capsules is the destruction of poisons, especially those produced by microbes.—*Ibid.*

A CRITICISM of the medical press and its tendency to run toward the lower animals in the efforts to find originating causes of many infectious and contagious diseases is the result of a suggestion of German origin that measles of man may be conveyed to the pig, and in the latter be transmitted to others, and perhaps that some alleged outbreaks of swine-disease may only be measles.—*Veterinary Record*, December.

RABIES in Ireland continues to be a source of disease of much concern, as the statistics show large numbers affected.—*Ibid.*

SOUTH AFRICA has sought the services of Professor Koch as to the best methods of dealing with rinderpest.—*Ibid.*

IN a series of cases cannabis indica or Indian hemp in doses ranging from one drachm to an ounce and a half, while somewhat uncertain in action at times, was eminently satisfactory in a large variety of colicky cases. The safest dose ranged from one to four drachms, repeated if necessary. Small doses rarely produced the objectionable constipation that followed large doses. After the exhilarating stage dulness and stupor followed in all cases, lasting a variable period of time, according to the amount given. Lessened pulse and respiration, and sometimes a subnormal temperature, drawn condition of the penis, and lessened activity of the bowels were the dominant actions produced.—*Ibid.*

EDITORIAL.

A NATIONAL MISFORTUNE.

The resignation of Prof. F. H. Osgood, Chairman of the Board of Cattle Commissioners of Massachusetts, is a misfortune of national importance. Not that the Bay State does not possess other members of the profession who can carry out the provisions of the law, but for the very grave reason that Prof. Osgood felt bound to withdraw from this important work because he was not willing to spend public money appropriated for scientific work in the interests of public health when the plans and measures for its wise use have been surrounded with such unwise restrictions as practically to subvert the great purpose of this movement. It is not often that our public servants have such high ideas of true responsibility in the spending of public money raised by general taxation, and these restrictions are a step backward for this great centre of educational progress, and no one can foretell the end. It is a serious menace to the progress of sanitary police work in this country, because our whole nation at certain epochs in the history of animal plagues has waited for the results obtained in Massachusetts, as that State set the pace in broad and advanced methods for dealing with the trouble. No one will question the strong grounds of action for this self-retirement by Dr. Osgood, but all with one accord regret that such conditions exist to cause so great a loss at this time. Entering upon this work at great personal sacrifice, Dr. Osgood, as Chairman of this Board, grasped fully the momentous character of this question of bovine tuberculosis and presented the most comprehensive and advanced plans for the control, eradication, and future protection from its losses ever offered in any nation or State. While we have always expected much from the people of that great commonwealth, and have reaped rich harvests from its many contributions to the public welfare, it should be said that never in the history of mankind did a State or people enter upon a sphere of work of as much vital importance with as well-laid plans as the movement set on foot to deal broadly and effectually with this scourge of the world, and which promised more true light and benefit to public health than any similar movement ever inaugurated. We profoundly regret this unexpected loss, which will halt in greater or less measure every movement for wiser and better sanitary police measures in every centre of our land, and will do much to deter action in many States where similar plans would have early matured for the conservation of this great problem.

In conclusion, may we ask of the higher officers and people of this great State, Can you afford to halt a movement of so much importance to the health and happiness of the people of the whole earth?

What will your answer be?

ARMY LEGISLATION.

THE work of the Army Legislative Committee is daily being enhanced by the help of the profession throughout the country. Under the earnest work of Secretary Morris, of the Empire State Association, every Congressman has been addressed and many seen personally by members of the Association. In Massachusetts, under the direction of member Peters, of the Army Legislative Committee, a strong letter has been sent to members of the Bay State delegation. Presidents Ridge, of the Pennsylvania, and Hart, of the Keystone Veterinary Medical Association, together with State Veterinarian Pearson, have issued a circular letter to all the Keystone Congressmen, and it is to be followed by personal interviews in the several congressional districts by members of the various veterinary organizations in the State. This line of work might be well taken up in every State, and will be strongly felt as a potent influence in favor of this much-to-be-desired measure. Should any member of the profession know of any opposition it will be well to inform the Committee on Army Legislation, so that it may be reached and a knowledge of the causes of such opposition learned.

UNDER the head of "Correspondence" there appears in this number of the JOURNAL an important contribution relative to the failure of our national government to properly recognize the value of scientific worth in the Bureau of Animal Industry by a just compensation of those who have filled these all-important places. The Department of Agriculture cannot always remain a school of training for the benefit of our educational institutions without endangering the success of its own work of investigation on behalf of nearly 50 per cent. of our people. This becomes more forcibly true as we learn of projected changes in the *personnel* of the Bureau, which, if true, are freighted with positive danger to the perpetuation of this department. Already there have appeared in the field aspirants for high places, relying on the strength and power of political influence to land them in positions of trust and great responsibility. The experience and fitness of these men for the discharge of the grave duties of these places are wholly secondary to the fact that they can land these plums by the use of the obnoxious pole of so-called party service to greater political bosses.

COLORADO VETERINARIANS SEEK STATE RECOGNITION.

THE veterinarians of the "Gold-hunters' State," fully alive to their needs and the dangers of delay, have presented to their State Legislature one of the best bills yet offered for regulating the practice of veterinary science. Learning of the danger of their State becoming the haven of refuge for the illiterate sharks and pretenders driven from other States where laws now prevail, they desire to be forearmed in this much-needed direction. Colorado has not as yet suffered, like many of the Eastern States, from a horde of these quacks and impostors, and therefore the citizens of that State can scarcely realize the extent and force of their depredations, and we trust that the legislature will pass this measure and extend to those who are endeavoring to render them scientific care and protection for their live-stock industry a just measure of recognition and support. The bill has several very excellent features about it; among others, that all registrations under the law will be made to the Board and not to a county officer, whose interpretation of the spirit and intent of such acts wholly depends upon whether he receives a salary or is dependent upon the fees of his office. A second good feature is the fee of ten dollars for resident non-graduates registering under one of the provisions of the Act. A fee of one dollar in Pennsylvania led to several hundred registrations under the original Act when a proper fee would have proved a barrier. The recognition of different schools of the Board assures fairness to all and adds strength to the measure. Every veterinary college, every association, and every member of the profession throughout the land should assist their colleagues in placing this measure on the statute-books of Colorado. It will be a boon to the owners of live-stock, and will afford the citizens of that State an intelligent and deserved protection for their investments, which alone can insure them against needless and disastrous losses where combined ignorance and knavery prevail in scientific fields.

Michigan and New Hampshire will ask at the hands of their lawmakers greater safeguards in better legislation for the supervision of the practice of veterinary science in these States, and we are sure that the people of these States, as well as of North Carolina, another commonwealth seeking similar favor and support, will not regret the passage of any law that shall lead to a higher degree of knowledge in this important division of medical science.

FUTURE MEETINGS OF THE U. S. V. M. A.

The division into sections for a part of the time fixed for our annual convention would give opportunity for special work of much value. A section comprised of those interested in agricultural college work would naturally draw together those associated with the organization of our veterinary faculties and result in a better understanding of the work to be accomplished, all of which could be best promoted in the way suggested. The laws recently enacted in New York State must necessarily prepare their students for better scientific work, and commercial institutions in scientific fields must go to the wall. So our national organization can well favor every one of these new avenues that tend to broaden and make better the science we represent, and, while aiding and supporting every institution whose aim is higher education, we still remain in that neutral field best fitted for us, of not dictating what schools shall do. Let the officers of the U. S. V. M. A. take up this suggested change.

THE VALUE OF WISE SANITARY MEASURES.

Under "Control Work" there will be noted some figures relative to the work of exterminating tuberculous animals in the Keystone State. This data is significant in several directions: first, it comes from a desire of our people to be rid of this great source of loss in their dairies—a determination to sell only the products of healthy herds. It gives a fair idea of the extent of the disease in suspected centres where most of these examinations have been conducted. It relieves a goodly number of herds from the danger of transmission by diseased animals, and in every instance better sanitary measures have been adopted for preservation from a fresh introduction of the disease and the spread of this as well as other infectious and contagious diseases. It has been accomplished at a relatively small cost to our people, and it has lifted a double burden from those engaged in the live-stock industry. It has strengthened the market for their products in many towns and districts of our State and given to the public increased confidence in our State officials and legislators who have provided these means for the better protection of the people within our borders. The whole tendency of the work has been educational, protective, and helpful to the people of our State without placing a burden upon any one class.

CLOSER AFFILIATION DEMANDED.

STRONG in numbers, fully representative of a great sanitary profession; strong in the intellectual character of its members and in full pace with the advance of medical and sanitary science; daily contributing to the progress of the world, the relief of suffering mankind, and the broader domain of the animal world; and equipped to shed light and assistance no longer possible to ignore, we ask at this time, Can any future Medical Congress or Pan-American Convention be complete without a recognized delegation of veterinarians or practitioners in comparative science? The whole domain of our animal friends rises daily in importance as each short cycle of time brings forth the closer relationship of so many forms of disease in man and those of the lower animals. The animal food supply, the chief reliance of man, finds in the veterinarian knowledge and closer observation of the diseases of relative import, not to speak of his special knowledge and training as to their peculiarities, their methods of propagation, the practical methods of control that may be safeguarded through his work and direction. Might we suggest to the newly elected President, Dr. Osgood, that the time is opportune and the need great for a closer affiliation of the students of human and veterinary medical science, and may this not be best accomplished by affiliation in these congresses, where the broad aspects of these important questions are delegated to representative men, many of whom might be veterinarians?

WHAT WE WANT TO KNOW.

ONE of our esteemed contemporaries in a recent issue exhibited in its reading columns the deepest concern and regret at the knowledge of the fact that one of our strong veterinary centres of learning had failed to establish in one of her offspring sufficiently high ethical culture to save him from endeavoring to flood the market with a proprietary remedy of such untold value that a standing wager was made as an evidence of its boasted merits as a curative agent. The same journal has recently opened wide its advertising pages for the sale of such preparations, and one is led to wonder which may prove the greater evil: to prepare such articles of commerce or to allow them to be advertised in scientific journals, which gives them an apparent if not real stamp of merit—an indirect approval that sporting or live-stock journals do not give to these remedies in accepting their advertisements.

THE JOURNAL craves the indulgence of its contributors for a little while. We find ourselves so overwhelmed with material that much of it, though important and of great value by its early publication, must be postponed for future issues. We are very thankful to our many friends for this best of all testimony of the interest thus exhibited in making the JOURNAL full and complete in every direction, and we shall endeavor to make the most of your generosity for the good of our profession.

THE appointment of Dr. Austin Peters on the Massachusetts Cattle Commission, in place of Dr. F. H. Osgood, resigned, is the recognition of one who has spent long and earnest years in the study of infectious and contagious diseases of the lower animals. He has served in official place under the Massachusetts Society for the Promotion of Agriculture, and was selected by the State Board of Health of New York in its endeavor to arrive at a knowledge of the extent of tuberculosis in the Empire State. The subject of tuberculosis is a familiar one in every aspect. From early study, observation, and investigation, Dr. Peters possesses a trained mind, is a thorough professional man, and his work will be a conscientious and painstaking duty for the people in whose interest he has now assumed a position of great responsibility. We wish for him in his new place the utmost success in all his efforts, and the JOURNAL will follow the pathway of his work with zeal and patience. He will now take up the most important position in our whole land on the subject of tuberculosis, and there will be the utmost interest in all that he does for his own people, who have become leaders in all progessive movements to stamp out dangerous and costly infectious and contagious diseases of live-stock. The people throughout the civilized world will be benefited by valuable lessons to be learned from the fruits of the labor which he will direct. With large means and power to be commanded; with no geographical limits too large for a thorough plan of action; no physical barriers that cannot be overcome or controlled; with ground better tilled by the conscientious work of his predecessors than anywhere in our land, we bid him welcome and wait with patience the fruition of his labors.

NECROLOGY.

JOSE MARIA PERALTA, M.D., D.V.S. The sad news reaches us by cable of the death of Dr. Peralta, in Cuba, where he had gone to aid the Cubans in their struggle for freedom. While engaged in some strategic work in behalf of those with whom his sympathies and aid were cast he was shot down by a Spanish soldier. Dr. Peralta was a graduate of the American Veterinary College of New York City, Class of 1892, and of Jefferson Medical College, Philadelphia. He served as a resident physician of St. Joseph's Hospital, Lancaster, Pa., for a period of time after the completion of his studies, and represented his country, Costa Rica, at the World's Fair in 1893. In these positions he won many warm friends, who, with those who had the pleasure of his acquaintance and the warm friendship of his sunny disposition, will with one accord be distressed at his untimely and sad death.

NEW PUBLICATIONS.

Diseases of the Dog and their Treatment. By Dr. GEORGE MULLER, Director of the Clinic for Pet Animals at the Veterinary High School at Dresden. Translated, revised, and augmented by Alexander Glass, A.M., V.S., Lecturer on Canine Pathology at the University of Pennsylvania. Now in press. The book will contain some ninety-three illustrations.

The Veterinary Blue-book of New York is in preparation under the auspices of the Veterinary Medical Society of New York County. Edited by the President, Dr. Huidekoper. It will contain a complete list of all the veterinarians of New York City, together with their titles, official positions, and a list of the officers and members of the United States and New York State Veterinary organizations, and many other societies of general interest to all veterinarians and horsemen. It will be the first attempt of this kind of a publication in this country, and will be watched with much interest and we are sure well received.

Professor A. Liautard, of the American Veterinary College, is preparing a work on the *History of American Veterinary Medicine.* Such a work from one so well known to the American veterinary profession, and who has spent so many useful years in the ranks, should prove interesting, valuable, and entertaining.

The Pennsylvania State Veterinary Sanitary Board has issued, under the direction of Dr. Leonard Pearson, one of the most complete and important contributions to the *Study of the Diseases of Poultry* in the English language. The extent and value of this industry to our people are told in figures that are startling to one who has not given the subject consideration. Numerous illustrations of the parasitic diseases, external and internal, add much to the value of this contribution, and it will be much sought after by our people, with grateful appreciation of its author and the board under whose direction it is issued. This department, as well as that of Forestry in Pennsylvania, is doing a public service that must surely allay any fears or misgivings of those who doubted the wisdom of establishing these new departments of our State government.

A third edition of Walley's *Guide to Meat-inspection* is announced, it having been completed by Professor McFadyean owing to the death of Professor Walley.

Dr. James Robertson, in a paper before the Illinois State Veterinary Medical Association, in November, on "The Relation of the Veterinary Profession to Horseshoeing," among many other good thoughts, well says: "The veterinarian and the shoer work in harmony. To be able to do so they must understand their respective duties. The veterinarian should have a practical knowledge of shoeing and be able to level and balance a foot, perform all operations on a foot, do his own surgery to suspected injuries, nail-pricks, suppurated corns, etc. The shoer, in addition to his mechanical skill, should know the structure of the machine he is expected to keep in repair, so that he may be able to assist a defective foot, adjusting the bearings for the proper workings of the joints, enabling the ligaments to keep the bone more accurately in position and the tendons to perform their functions of flexion and extension."

LEGISLATION.

A PROPOSED BILL TO REGULATE THE PRACTICE OF VETERINARY SURGERY, MEDICINE, AND DENTISTRY IN THE STATE OF COLORADO.

Be it enacted by the General Assembly of the State of Colorado:

SECTION 1. A Board is hereby established to be known as the State Board of Veterinary Examiners. Said Board shall be composed of three practising veterinary surgeons who are graduates of some recognized but different colleges of veterinary surgery and medicine, which Board shall be appointed by the Governor within thirty days after this Act becomes a law. Said Board shall be appointed, one for two years, one for four years, and one for six years. Thereafter the Governor shall appoint biennially one member of said Board possessing the qualifications before stated. In the event of resignation, death, or removal of any member or all the members of said Board, the Governor shall appoint their successors within thirty days.

SEC. 2. The Board of Veterinary Examiners shall elect from its members a president, a secretary, and a treasurer, and may adopt such rules as they may deem proper for the performance of their duties and to carry into effect the provisions of this Act. They may also adopt a seal, which shall be affixed to all certificates issued by them, and the president and secretary shall sign all such certificates, but that no member of the Board of Veterinary Examiners shall require or accept any fee for services rendered in his capacity as such member of the Board of Veterinary Examiners except their actual travelling and necessary expenses.

SEC. 3. It shall hereafter be unlawful for any person to practise veterinary surgery, medicine, or dentistry, or any branch thereof in the State of Colorado without having previously obtained a certificate from the Board of Veterinary Examiners or having registered as hereinafter provided.

SEC. 4. Applicants for certificates to practise veterinary surgery, medicine, or dentistry, or any branch thereof in the State of Colorado shall file their application with the Secretary of the Board of Examiners. If the applicant be a graduate of a recognized college of veterinary surgery and medicine, he shall present his diploma to the Board or give satisfactory evidence of his being a graduate of a recognized college of veterinary surgery and medicine. The Board of Examiners shall examine all diplomas or evidences of such as to their genuineness.

SEC. 5. But it is further expressly provided that any person who shall have gained his livelihood solely from the practice of veterinary surgery and medicine as a profession in this State for the past five years immediately preceding the passage and approval of this Act shall be permitted to continue the practice of said veterinary surgery and medicine if he shall within ninety (90) days after the passage and approval of this Act register his name and address with said Board of Veterinary Examiners and give satisfactory proof to said Board of Examiners that he has practised in the State of Colorado for five years and is qualified to register under the provisions of this Act.

SEC. 6. All persons commencing the practice of veterinary surgery, medicine, or dentistry, or any branch thereof in the State of Colorado after the passage and approval of this Act shall be graduates of a legally authorized and recognized veterinary school, college, or university, and shall comply with the provisions of this Act.

SEC. 7. Upon the approval of diploma or satisfactory evidence that applicant is entitled to register under the provisions of this Act said Board of Veterinary Examiners shall issue to such applicant a certificate to practise veterinary surgery, medicine, or dentistry, or any branch thereof in this State, and said certificate shall be conclusive as to the rights of the lawful holder thereof to practise veterinary surgery, medicine, or dentistry in the State of Colorado, provided that said Board shall have power to reject any applicant for registration who is not fully qualified under the provisions of this Act.

SEC. 8. There shall be paid to the Treasurer of said Board of Examiners in advance a fee of five dollars ($5) for each certificate issued to graduates of veterinary colleges, and a fee of ten dollars ($10) by all applicants for registration under Section 5 of this Act; and in case of failure of approval said fee shall be forfeited to the Board of Veterinary Examiners.

SEC. 9. It shall be the duty of said Board of Examiners to keep a register of all practitioners qualified under the provisions of this Act and to register the name, age, and time spent in the study and practice of veterinary surgery, medicine, or dentistry, and, if a graduate, the name and location of the school or college granting his diploma. Such records shall be *prima facie* evidence of all matters therein recorded, and shall be open to public inspection at all times, within reasonable hours, at the office of the Secretary of the Board. Such register shall be turned over to each succeeding Board of Examiners.

SEC. 10. The President of said Board shall have the power to administer oath, and said Board the authority to take testimony in all matters relating to its duties.

SEC. 11. Every person holding a certificate under the Board of Veterinary Examiners shall have the same recorded in the office of the clerk of the county wherein he resides.

SEC. 12. Any person practising veterinary surgery, medicine, or dentistry, or any branch thereof in the State of Colorado without complying with the provisions of this Act shall be deemed guilty of a misdemeanor, and upon conviction thereof shall be punished by a fine of not less than $50 nor more than $300, or by imprisonment in the county jail for not less than ten days nor more than sixty days, or by both fine and imprisonment, for each and every offence; and all fines collected in accordance herewith shall be paid to the Treasurer of said Board of Veterinary Examiners.

SEC. 13. Any person shall be regarded as practising veterinary surgery, medicine, or dentistry, or any branch thereof within the meaning of this Act who shall publicly profess to be a veterinary surgeon or prescribe for sick and injured animals and accept fee for such services, or attach to his name the title "V.S." or "Veterinary Surgeon," or any veterinary title in a medical sense.

But nothing in this Act shall be construed to prohibit gratuitous services in a case of emergency.

SEC. 14. All moneys received by the Treasurer of said Board of Examiners shall be paid by him to the State Treasurer, and all expenses of said Board shall be paid out of this fund upon warrants drawn by the State Auditor on the State Treasurer and signed by the President and Secretary of the Board of Examiners, and no other money shall be paid out of the State Treasury for the use and purpose of this Act, provided that any excess in this fund above the expenses of said Board of Examiners shall stand to the credit of said Board of Examiners.

SEC. 15. The said Board shall meet as a Board of Examiners in the city of Denver on the second Monday in January and July of each and every year, and at such other times and places as they may find necessary for the performance of their duties.

An extremely important decision has just been rendered by the Supreme Court of Minnesota bearing upon legislation as to the powers of Boards of Health in enforcing ordinances regulating the production and sale of milk. The court held that this ordinance was not extraterritorial, and that it is competent for a city council to require that an applicant for a license to sell milk within the city shall consent that the dairy herd from which he obtained his milk may be inspected by the Commissioner of Health of the city, although such dairy herd is kept outside the city limits.

"The tuberculin-test" held not unreasonable. The requirement that he shall consent, as a condition precedent to obtaining such license, that the animals from which he obtains the milk shall be subjected to the tuberculin-test, is not unreasonable.

As to whether a license from a city under an ordinance from Councils is a substitute or supplemental to a license from the State Dairy Commissioner is not decided, but in either view the ordinance is authorized by the Act of 1895.

The points involved in this decision are such that every veterinarian should be familiar with them, as they go to the very core of this whole question of proper safeguards to consumers of milk.

A bill will be introduced in the Legislature of Delaware to pay from the State Treasury all expenses incurred in sending poor children bitten by rabid dogs to the Pasteur Institute in New York.

In New Hampshire the proposed Act requires registration of all veterinarians after July 1, 1897. All registrations after satisfactory examination before an appointed board of three examiners. Subjects: anatomy, physiology, materia medica and therapeutics, practice of medicine and surgery. Examiners to be members of the State Association. First examination fee, ten dollars; subsequent ones within two years. Two examinations yearly. Fees to pay expenses of board. Certificates not to permit the use of any degree unless formerly obtained from a veterinary college. Exemption clause for those graduates who have been in active practice for three years prior to date of application for registration.

* * *

A cavalry troop, consisting of forty of the leading young business men and prominent citizens of Des Moines, Iowa, has been organized, and Gen. Lincoln, of the Iowa Agricultural College, drills them once a week. Their horses include some very good Missouri and Kentucky saddlers, and the interest that is being created promises to stimulate greatly the demand for gaited saddlers in Des Moines.

CORRESPONDENCE.

RECENT CHANGES IN THE PERSONNEL OF THE UNITED STATES BUREAU OF ANIMAL INDUSTRY. The resignations of Dr. V. A. Moore, chief of the pathological division, and of Dr. Pierre Fish, first assistant, each of whom had accepted chairs in the New York State Veterinary College, at an increase of more than 35 per centum in their salaries, forms another step in the regretable series of losses of valuable trained men to the public service.

Dr. Moore, though chief of division but little over a year, has been in the laboratory over eight years, and is the author of valuable treatises on hog-cholera, swine-plague, turkey and chicken diseases, milk examination, and bacteriological technique. The New York State College is fortunate to have secured his services.

Dr. Fish had been in the laboratory a much shorter period, and had not yet come prominently before the public in a veterinary line. He was highly skilled in laboratory technique, and is the author of several important papers on the structure of the brain. His appointment to an important chair shows the high standing in which he is held as an investigator and teacher.

On November 15th last the place vacated by Dr. Moore was filled by the transfer of Field Inspector Dr. Victor A. Norguard, who has been connected with the Bureau about five years, is the author of an article on actinomycosis, and has lately been engaged in experiments in dipping cattle to remove ticks.

Dr. Charles Dawson, long an assistant in the Bureau, has been deservedly promoted to first assistant's place.

The services of Dr. Cooper Curtice, live-stock agent of the Bureau, were terminated November 30th on account of the discontinuance of temporary service inspecting cows for tuberculosis and the completion of other work to which he had been assigned.

The repeated losses sustained by the Bureau in exchanging men of long training in special branches for those comparatively unknown and of limited experience are such as to seriously interfere with its work. No sooner do incumbents become fitted for their special work and show marked adaptation and ability in prosecuting it than they are withdrawn to fill chairs in the universities, where their work is more highly appreciated. The Bureau will never be eminently successful in its investigations until it is prepared to employ and retain in its service the most skilful men of the country. The little already attained has been accomplished by men in the early years of their training, their more mature work being secured by the institutions they have joined.

Though the civil-service reform has in many ways improved the general service, it has yet another step to take in recognizing the fact that men most competent to fill certain scientific government positions obtain far higher salaries outside, and the grading of these positions with those of the purely clerical force serves to keep them filled with inexperienced men. For example, in this Bureau alone two men who have added the most fame to its scientific reputation by reason of personal work have within nearly a year left the division of pathology to take chairs at greatly increased salaries. By statutory provision they could receive as chief of division but twenty-two hundred and fifty dollars, in accordance with the theory of graded service, which demands that heads of all divisions, whether of the Treasury, Interior, or Agricultural Departments, shall receive but twenty-five hundred, or in this case less. Up to this time the theory has not been effective in retaining the best service. Congress, in appropriating four thousand dollars for the Chief of Bureau, recognizes the importance of the place. Its next step is to recognize the value of the best scientific work, pay the workers commensurately with the Chief of Bureau, and employ men whose attainments rank them among the first of the country.

VETERINARY DEPARTMENT, UNIVERSITY OF CALIFORNIA.
SAN FRANCISCO, CAL., November. 1896.

THE EDITOR JOURNAL OF COMPARATIVE MEDICINE:

DEAR SIR: At a meeting of the students of the above College, held this day, it was unanimously

Resolved, That this meeting having read the remarks of Dr. Archibald in reference to the above College in his report to the United States Veterinary Medical Association, published in the JOURNAL OF COMPARATIVE MEDICINE for this month, it is

Resolved, That this meeting tenders to each and every professor a hearty vote of thanks for the untiring efforts they have made to promote the welfare of this College and for the disinterested way in which each and every one of them has labored for the advancement and welfare of the students. It was further

Resolved, That the editor of the JOURNAL OF COMPARATIVE MEDICINE and the Secretary of the United States Veterinary Medical Association be informed that the statements made are false from beginning to end, and were made solely in a cowardly spirit of revenge by an individual whose efforts to obtain a position on the teaching staff were fortunately frustrated.

JOS. A. WELSH, on behalf of Class '97,
J. OTIS JACOBS, on behalf of Class '98,
THOMAS E. CARROLL, on behalf of Class '99,
Committee.

CONTROL WORK.

Pennsylvania. Up to November 25th there had been examination applications to the State Veterinary Sanitary Board for 3226 head of cattle. Of this number, 2975 had been examined with tuberculin, of which 795 were condemned and destroyed as tuberculous at a total cost for the entire work of $18,229, or an average of less than $23 per head.

The Food Commissioner of Pennsylvania in his annual report states that there is an unusual demand for the literature of the Board relative to the adulteration of milk by the use of so-called preservatives. The rapid increase of creameries in the State has presented two new and important aspects of the milk question. First, the production and sale of a very poor quality of skim-milk for feeding purposes; second, the danger of spreading tuberculosis when feeding this to young animals, if there should be any diseased herds within the circuit of the factory's patrons. He reports 1,000,000 milch cows in the State, producing 1,700,000,000 quarts of milk. Of this amount at least 600,000,000 quarts are consumed as milk and cream. The pure-food law has proved of more value in dealing with the milk-question than if it set up a legal standard. He well says that if the latter is low enough to be fair to the dairyman at different seasons of the year, and for all breeds of cattle, the temptation is offered to the dealer having milk rich in fat to adulterate the milk, knowing he could do so and still keep within the standard fixed as legal. He advises consumers of milk to decline to receive the milk unless proper assurance is given, backed by a report from some competent veterinarian, that the cows furnishing the same are healthy.

Twenty-one cattle in a Wayne County herd were recently condemned and destroyed as tuberculous.

Maryland. Rabies is somewhat prevalent in Baltimore. A number of bitten people have been sent to the Pasteur Institute in New York City, one or two of whom have died from hydrophobia.

Illinois. According to State Veterinarian Trumbower, Illinois cattle are less troubled with disease than at any time the past year, but swine-plague is prevalent in the northern part of the State. During the year's post-mortem inspection at the stock-yards only 78 cases of tuberculosis were found and 21 cases of cancer. Carcasses of 802 cattle were passed on post-mortem examination and 1643 condemned and ordered tanked.

South Africa. Rinderpest continues to prevail in South Africa, and as usual remedies of every conceivable kind are springing up. The disease is in some measure controlled by sanitary police-system, but the difficulties in maintaining this rigid enough are many and hard to deal with, as the natives are not of sufficient intelligence to appreciate the value of these measures.

Canada. Overtures are in progress between representatives of Canada and the United States reciprocally to release the quarantine measures now existing relative to cattle.

Glutol continues to be highly commended by German veterinarians in the treatment of wounds as a dressing-powder. Harness- and saddle-galls, fistulous tracts, irritating eczemas, scratches, lacerated wounds, and the treatment of a number of cows whose calves had been dying regularly from diarrhœa shortly after birth, are among the cases reported where very favorable results were obtained. In this last condition glutol tampons were placed deep in the vaginas of the cows five days before calving and the external parts washed with a 3 per cent. solution of creolin.

Equal parts of a 1 per cent. aqueous solution of trikresol and hot water, applied with a camel's-hair brush, quickly eradicated an extremely irritating, inflammatory eruptive skin affection of a canary-bird, attacking both eyelids, the throat, butt of one wing, and one leg, at the Philadelphia Veterinary Sanitarium.

Useful formula for rheumatoid influenza:

℞.—Sodii salicylas, ℥iij ; potass. iodidii, ℥iss ; pulv. glychr. rad. and pulv. fenugræci, āā ℥ss. M.—Ft. chartæ No. xvi.

Sig.—One powder every four hours, as required. Externally to local parts apply soap liniment, four portions; tinctures of aconite, opium, belladonna, and iodine, of each one portion.

SOCIETY PROCEEDINGS.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

THE thirteenth annual meeting was held at the Sherman House, Chicago, November 17th and 18th, and was called to order by President M. R. Trumbower at 3 P.M. On roll-call the following members responded: Drs. A. G. Alverson, Albert Babb, A. H. Baker, S. S. Baker, F. L. Brown, John Casewell, L. Campbell, E. S. Frye, Robert Gysel, T. J. Gunning, W. C. Hanawalt, H. G. Hoover, Joseph Hughes, C. W. Johnson, J. H. Judson, O. J. Lanigan, W. J. Martin, C. A. Pierce, E. L. Quitman, J. T. Ryan, C. E. Sayre, J. L. Siegrosser, Olof Schwarzkopf, J. L. Tyler, M. R. Trumbower, W. F. Weise, M. Wilson, and R. G. Walker.

The President then made his annual address, which was pregnant with facts regarding the present status of the profession in this State. Dr. E. S. Frye then read his paper, "Inversion of the Uterus," which was liberally discussed, after which came the production of Dr. Charles W. Johnson on "Parturient Apoplexy," which occasioned the usual protracted discussion of this perplexing disease.

On application the following gentlemen were admitted to membership: Drs. J. F. Black, A. E. Flowers, James Henderson, L. A. Merillat, George McEvers, James Robertson, all of Chicago, together with Drs. Harri H. Dell, of Sullivan, Ill.; G. A. Lytle, of Barrington, Ill.; G. G. Ratz, of Red Bud, Ill.; and W. H. Welch, of Lexington, Ill.

At the evening session the Society listened to the meritorious paper of Dr. E. L. Quitman on "Therapeutics." A spirited and lengthy discussion followed. A vote of thanks was extended to the writer. Society adjourned until the next day.

The Society was called to order at 10 A.M., November 18th, with the President in the chair. Dr. W. C. Hanawalt read his essay on "Therapeutics of Salicylate of Sodium," which was liberally discussed. Next came Dr. W. J. Martin with his article on "Fistulous Withers," which brought forth many practical suggestions. Adjournment for dinner then followed.

Society returned to business at 3 P.M., and at once listened to Dr. W. F. Weise's paper, "Infectious Ophthalmia of Cattle." Several members then related their experiences with this disorder. Then came Dr. James Robertson's production, "The Relation of a Veterinarian to the Horseshoer." It was a sound practical article on a very important subject, and was duly appreciated.

A recess of fifteen minutes was then taken for a general talk on the matter of legislation, after which the Treasurer, Dr. R. G. Walker, made his report, showing a small balance to the credit of the Association.

Election of officers was next in order, and the following were chosen: President, M. R. Trumbower, of Sterling, re-elected; Vice-President, A. G. Alverson, of Bloomington; Secretary, Albert Babb, of Springfield, re-elected; Treasurer, R. G. Walker, of Chicago, re-elected. The present Board of Censors was continued another year. The President appointed the following Committee on Programme: Drs. A. H. Baker, J. F. Pease and J. L. Siegrosser.

On motion, the chairman appointed Drs. S. S. Baker, M. Wilson, T. J. Gunning, J. L. Tyler, and Albert Babb as a Committee on Legislation, with power to act. All were determined to work for a bill in the coming session of the Legislature, and the Society assessed each member ten dollars to make up the requisite fund for expenses of the committee. Dr. Drinkwater, of Iowa, was a welcome visitor. Col. Hamilton was also present and gave some timely suggestions in regard to legislation.

On motion, the Society adjourned to meet at the call of the President at Bloomington some time in February. ALBERT BABB, A.B., M.D.C.,
Secretary.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE regular meeting was held November 19th in the library of the College. The Vice-President, Dr. Charles McEachran, occupied the chair.

There being no business, the chairman called upon Mr. Newcomb to report his case, which was one of "Supernumerary Testicles in the Horse," interesting from its rarity and the denial of its occurrence by several authors who consider mistaken diagnosis responsible for such cases; but Mr. Newcomb, being so confident of a correct diagnosis, had no hesitancy in reporting the following case: On June 16, 1895, he was called to castrate a well-bred two-year old. On examination no sign of scrotal hernia was discovered, but quite a difference in the size of the testicles was noticeable, the left being one and one-half times the size of the right. The colt was cast and the right testicle removed; the left side of the scrotum was then incised, and to his surprise the testicle exposed was no larger than the first; a little traction made the cause of the variation in size apparent. The spermatic cord was divided, and on the branch was a third testicle which did not differ from the other except in size. It possessed an epididymis, and, as far as the naked eye could discern, had the same structure. The ecraseur-chain was passed over the cord above the division and both testicles removed. In May, 1896, he received a letter from the owner asking him to examine the same colt. Dr. E. H. Morris and himself examined the animal and found the right side of the scrotum enlarged and containing what they had no doubt was a testicle, although it seemed firmly adherent to the walls of the scrotum. On the 19th of May they operated and removed another testicle. The covering was inseparable and it was necessary to dissect the testicle away from the scrotum. The cord was thickened and very tough, and, after breaking an ecraseur-chain, the emasculator was used to sever it. The wound healed splendidly and the animal caused no further inconvenience to the owner.

Mr. Cullen followed with a paper on "Horseshoeing." The members present are to be congratulated on having heard an essay presenting so many aspects, both theoretical and practical, upon this important subject. The essayist, after describing the provisions of nature for maintaining the foot in a normal condition when the animal was in its normal state—*i. e.*, on the plains—remarked that in his opinion, owing to these provisions being absent in its domesticated condition, careful attention to the feet from birth upward was indicated. Practical shoeing in regard to the different breeds of horses and the various work required of them was fully discussed, together with the more important anatomical and physiological points, the essayist remarking that in his experience it was seldom that a normal foot appeared at the forge, owing to the lack of the aforesaid attention, consequently he would devote the greater part of his essay to the shoeing of abnormal feet. After condemning the various forms of careless and ignorant shoeing, he clearly indicated the most probable methods that might be employed for their correction. Continuing, he described many points of practical interest in the application of shoes for relieving the lameness consequent upon various diseases, such as corns, sand-crack, etc., showing the difficulty under which the blacksmith labored in being frequently required to apply a shoe for the immediate cure of lameness, even after pointing out to the customer the necessity of prolonged treatment and rest. In the discussion which followed the essayist fully demonstrated his familiarity with the subject, practically and clearly answering the numerous questions which his paper evoked. The main points of interest in this discussion appeared to be, first, as regards the permanent use of the bar-shoe for the production of the necessary pressure on the foot-pad, which Mr. Cullen advocated. Secondly, the query as to whether the application of a hot shoe to obtain a level bearing was injurious or not, the essayist upholding the judicious practice of this method for that purpose.

Dr. Charles McEachran, after complimenting the Society on the splendid manner in which the discussion had been maintained and the essayist on the able way in which he had defended his paper, stated that in his opinion in place of the bar-shoe, though undoubtedly often necessary, a slight pressure exerted between the ground and the foot-pad produced by an open shoe conforming to the natural shape of the foot was preferable. The proceedings then terminated.

A meeting was held December 3d in the library of the College, the President, Dr. Baker, occupying the chair.

Mr. Parker reported an interesting case of "Œsophagotomy in the Cow." Before Mr. Parker arrived at the case, the owner and friends had attempted to remove the obstruction, which eventually proved to be a large potato, by pushing it down with a fork-handle. On Mr. Parker's arrival he found the animal in an extreme condition of tympanites, which he relieved by using the trocar; being unsuccessful in his efforts to remove the obstruction by means of the probing, he decided to operate. This Mr. Parker did under strict antiseptic precautions, and was rewarded by the animal making a good recovery, which took some twenty-eight days, during which time the patient was supported by rectal injections of new milk, slowly administered, and by drenches of oatmeal-gruel. Some discussion followed as to the various methods of treating these obstructions, and it was suggested that in cases similar to the above the animal might be supported by direct injection into the rumen.

The President then called upon Mr. Hillard for his paper. This was one on "Laminitis," which he commenced by pointing out that the common name of "foundered" was based on the assumption that an animal so affected was unable to progress favorably, and thus resembled a ship when disabled. The essayist accurately described the symptoms accompanying the acute, subacute, and chronic conditions of this disease. Among the predisposing causes he cited that of crossing light and heavy breeds, a frequent result of which is an animal with feet too light to support a heavy body. Mr. Hillard then discussed the various methods of treatment, and, in concluding, advocated the application of a stout, wide-webbed bar-shoe. The relative value of hot and cold applications was then discussed by the members, the majority being in favor of the latter. The President then briefly gave the history of some cases of laminitis which had occurred in his own practice. His experience had shown him that for treatment to be successful it is essential that it be resorted to early, and as far as hot and cold applications went he had had equally good results from both. If the animal is bled, it should be done early, and the blood rapidly extracted. He advised the members when called upon to see horses taken suddenly ill and breathing rapidly to always have them moved before making a diagnosis.

The Secretary then read a communication from Dr. Rowat, of Hawaii, with regard to a disease which had recently made its appearance in a herd of cattle, and which he designated "Enzoötic Hæmaturia." This was listened to with much interest, and at the conclusion a hearty vote of thanks was unanimously accorded to Dr. Rowat.

The proceedings then terminated. B. A. Sugden,
Secretary-Treasurer.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The Association was called to order for the November meeting on the 10th instant, with the following members of the profession in attendance: Thomas B. Rayner, H. J. McClellan, O. G. Noack, S. H. Johnston, H. A. Christman, F. S. Allen, H. P. Eves, Charles T. Goentner, John R. Hart, W. Horace Hoskins, Charles Lintz, James T. McAnulty, L. S. Pearson, James B. Rayner, W. L. Rhoads, and a number of veterinary students from the Veterinary Department of the University of Pennsylvania.

The election of officers, having been postponed from the October meeting, was taken up at this time and resulted in the election of Dr. John R. Hart, President; James B. Rayner, Vice-President; Francis S. Bridge, Treasurer; W. L. Rhoads, Secretary; with the following Board of Trustees: Charles T. Goentner, F. S. Allen, H. P. Eves, W. H. Hoskins, and L. Pearson.

Dr. Hoskins suggested that as Dr. E. A. A. Grange was one of the originators of the Keystone Veterinary Medical Association, he be given one of the membership certificates. Dr. Goentner raised the objection that under such ruling anyone who had been a member could procure a certificate by having a present member champion his cause; he suggested that, in consideration of the work Grange had done for the Association and the great amount of good work he was doing for the profession in his present position, we make him an honorary member. This matter was left for further discussion at the December meeting.

Dr. Benjamin Lee, Secretary of the State Board of Health, now addressed the Association on "Legislation of Mutual Interest to the People, as represented by the State Board and the Veterinarians as Sanitarians." During this talk he read from the proceedings of the U. S. V. M. A. a number of resolutions and gave the veterinarians great credit for a number of things that were done, and said in a number of ways they were already ahead of the medical men. He then explained how the veterinarians might cooperate with the State Board. He considered our laws as being inadequate in regard to the inspection of our meat- and milk-supply, saying that all tuberculous meat should be stamped as such, and trichinous pork, though it may be sterilized by cooking, is certainly not nice, and he believes the fat only should be used. The inspection of milk, to be good, should begin at the dairy and should be made by competent veterinarians, as no physician is as capable as the veterinarian of judging from beginning to end. This inspection, with an insistance of the tuberculin test, is the only safeguard for the people, and it is to be hoped that soon legislation on this point will be taken up by the State instead of being just municipal. He spoke of the wonderful decrease in the death-rate of Buffalo within the last five years, since the water could not be mistaken for ink nor pea-soup; the streets were good, the milk-supply well guarded, and the health officer a competent physician; the death-rate has decreased to such an extent that the actual number of deaths last year (with the great increase of population) was less than it was five years ago. He spoke of the number of diseases common to the lower animals and man, and said it would be interesting to know to what an extent the domestic animals are carriers of disease, though not themselves affected. Whooping-cough has been fatal to the dog; diphtheria quite common to the dog and cat; they have the range of the house, and their fur is an admirable carrier of these as of sundry other disease-germs. He hopes the people will soon awake to the necessity of a health officer in every township; this would in a great measure assist in keeping complete vital statistics; he claims it is an absolute disgrace not to have this registration compulsory throughout the State. The State Board fund is inadequate, being but $6000, $2000 of which is used as salary for the secretary and $2000 for clerks, leaving but $2000 for the investigation of diseases, watching streams, and other imperative duties.

Dr. Pearson said the inspection of meat, milk, and dairies was done in foreign countries with great thoroughness, and claims in the inspection of milk the important point is the inspection of the cows and their surroundnings, as the specific gravity and color may be all right, yet the cattle may have tuberculosis; water may contain typhoid germs; attendants may have diphtheria or some kindred disease. Hoskins excused the State Board for sending one of their members to examine the piggeries which caused so much trouble, but felt they did it on account of the inadequate funds. Noack said that all cities of the third class could employ a food commissioner, and he might be a veterinarian; he then explained why he had troubles of his own with the people of Reading and vicinity. Eves said in Delaware the veterinarian did not have enough pull, as their bill framed on contagious diseases was never heard of from the committee-room. Wilmington has a farmer for milk-inspector. Allen spoke of New York having a law compelling both owner and veterinarian to report and destroy all animals suffering from contagious diseases. Just before adjournment Dr. Hoskins, in behalf of his co-workers, with one of his silvery speeches, presented Secretary Rhoads with a magnificent lamp as a mark of their approbation of his recent venture. This (the presentation) being a complete surprise to the Secretary, was but feebly responded to. "Shakespeare says, 'silence is the perfect sign of appreciation;' I were but little thankful if I could say how much. I cannot do better than extend this quotation to those so kind to me."

The December meeting was held on the 8th instant, with the following members of the profession present: Drs. T. S. Allen, H. P. Eves, Charles T. Goentner, J. R. Hart, W. H. Hoskins, W. S. Kooker, J. T. McAnulty, L. Pearson, W. L. Rhoads, and a few students.

A report of the Committee on Certificates was made, the certificates issued to those present, and the committee, having completed its task, was discharged.

Under unfinished business, the election of Dr. E. A. A. Grange as an honorary member was in order. His election to honorary membership was unanimous.

The following amendment to Article II., Section 3, of the By-laws was offered by Drs. Leonard Pearson and W. H. Hoskins: "Candidates for honorary membership must be proposed in writing by two active members of the Association and their names referred to the Board of Trustees, and acted upon at a following meeting." The applications of Dr. Thomas B. Rayner, of Chestnut Hill, and H. A. Christman, of the same place, having been favorably reported by the Board of Trustees, were acted upon by the Association and unanimously elected to active membership.

Dr. Ravenal, of the State Bacteriological Laboratory, now gave an interesting talk on "Bacteriology in its Relation to Veterinary Science," during which he spoke of the great interest taken in science by a great number of veterinarians, the works of some having been epoch markers—the field of preventive medicine having so far proven more productive to the veterinarian than to his brothers in the healing art. Based on bacteriology we have preventive inoculations. He spoke of the three distinct types of vaccination, quarantine, etc. He then spoke of the best way for the general practitioner to assist the specialist in bacteriology in his work for their mutual benefit. He said the theory of burying anthrax cases seven or eight feet deep to prevent further infection, while practically safe, was not literally so, as experiments have shown that the changes due to decomposition develop heat enough to allow the formation of spores which might be brought to the surface by earth-worms. He spoke of osteoporosis and meningitis as being of peculiar interest alike to the practitioner and the scientist.

Dr. Hoskins asked by what means they might become certain as to the diagnosis of what we at times know as dumb rabies. Dr. Goentner, having seen a number of these cases, said he thought in the majority of cases it was but a form of meningitis. Dr. Ravenal now explained how the diagnosis might be verified by successive inoculations, the germ constantly becoming more virulent. Dr. Pearson spoke of a culture being carried through eight generations in the rabbit.

Dr. Hoskins now spoke of a committee from the Milkmen's Association having waited upon him and asking that they be granted a hearing on the milk question, as they felt Dr. Morris had been heard in opposition to them. It was moved and decided to invite Mr. George Abbott to give a half-hour talk at the January meeting on the milk question. W. L. RHOADS,

Secretary.

ONEIDA COUNTY VETERINARY MEDICAL SOCIETY.

THE regular quarterly meeting was called to order at 2 P.M., November 3, 1896, in the parlors of Stanwix Hall, Rome, N. Y., by Dr. F. Morrow, President. The following members responded to roll-call: Drs. F. Morrow, Oneida; L. G. Moore, Trenton; A. Findlay, Camden; Wilson Huff, Rome; and J. M. Currie, Rome.

The minutes of the previous meeting were read and approved. When the order of new business was called, the advisability of this Society issuing certificates to its members was brought up by Dr. Moore; it was well discussed by those present, and finally it was moved by Dr. Huff and seconded by Dr. Moore that a suitable certificate be issued, and that the recipient of such certificate agrees to return the same to the Society whenever he ceases to be in good standing. Carried.

Next came the reading of papers. Dr. Moore read an interesting paper on the "Actions of Barium Chloride and Eserine and Pilocarpine in the Treatment of Impaction of the Intestines in the Horse." He strongly recommended the latter remedy, as a result of his personal experience with them. A lively and interesting discussion followed, and the writer was tendered a vote of thanks for his valuable contribution.

The remaining time was taken up discussing points of interest in our daily practice.

There being no further business to come before the meeting, an adjournment was taken, to meet again the first Tuesday in February, 1897. All departed for their respective homes well pleased with the manner in which the afternoon had been spent.

J. M. CURRIE, V.S.,
Secretary,

NEW HAMPSHIRE VETERINARY MEDICAL ASSOCIATION.

THE thirteenth meeting was held at the Eagle Hotel, Concord, on Tuesday, December 8th, at 11.30 A.M., with Dr. Lilico in the chair. Drs. Lilico, Tuttle, Hart, Abbott, Russell, Macguire, and Pope responded to roll-call.

Dr. Pope read a report on the proceedings at the United States Veterinary Medical Association Convention at Buffalo in September.

Dr. Lilico, chairman of the Legislative Committee, presented a proposed bill from the committee to go before the coming Legislature. The bill was discussed by sections and a few changes suggested. Dr. Lilico was then authorized to employ counsel and have the bill put into proper shape and the penalties attached. After its completion, the Secretary was instructed to call a meeting to reconsider the changes made. Dr. R. J. Macguire then read a most interesting paper on "Abortion." Meeting adjourned to March.

L. POPE, Jr., M.D.V.,
Secretary.

CHICAGO VETERINARY SOCIETY.

A MEETING was called to order on the evening of December 10, 1896, by the President, Dr. R. G. Walker. Roll-call showed twenty-seven members present. The minutes of the previous meeting were read and approved.

The President made a short address, in which he asked all members to be present hereafter promptly at 8 P.M., so that the meeting may come to order and the Secretary finish the roll-call by a quarter past. He also made a special request that all the members use their efforts with their representatives in support of the "Army Veterinary Bill" for the regulation of the positions and pay of veterinary surgeons in the United States Army.

The committee appointed to draft the by-laws and constitution of this

Society were, on motion, discharged. Moved and seconded that the Secretary be appointed to provide copies of the by-laws and constitution, and he shall also be authorized to secure any other needed stationery or printed matter. One of the members suggested that very likely some one of the instrument-houses would gladly print the by-laws for the Society if the house would be permitted to place their advertisement on the cover. Motion by Dr. Gysel, seconded by Dr. Johnson, that the Society pay for its own printing, and that no advertisements be permitted. The President, Dr. Walker, being suddenly called away, the chair was taken by Dr. Dyson, First Vice-President.

The next order of business was the reading of a paper on "Dentistry," by Dr. L. A. Merillat. The paper was a general one, dealing with no particular disease. The author censured veterinary surgeons in general as veterinary dentists, which condemnation grows out of the fact that too little care and study is applied to this subject, and how much better operators many unqualified men are than college graduates, who should be the leaders in all branches of the profession. The paper gradually led up to the special diseases of the teeth, with which special diseases Dr. Merillat very kindly offered to deal at the next regular meeting. At the close of the paper he stated that in his opinion there was hardly a horse that had not *some* irregularity of the teeth which a proper operation could improve, and that every veterinary surgeon should be thoroughly competent to do such operation when called upon. The discussion following this paper was very interesting. The question of price for an ordinary operation of floating was brought up, the general sentiment being that the fee should be $3.00. Dr. Merillat thought that when a horse was brought to his hospital $2.00 was a sufficient charge for fifteen or twenty minutes' work on a horse's mouth. Drs. Sayre and E. L. Quitman said they charged $3.00, and tried always to maintain that price even at the hospital. This discussion was conducted by Drs. Merillat, E. L. Quitman, Sayre, P. Quitman, Robertson, and Campbell. The subject of "Bishoping" was brought up by Dr. Hawley, who wanted to know if veterinary surgeons should refuse to bishop horses' teeth when requested to do so by horse dealers. This called forth quite a little discussion. A few of the members present said they had formerly made a practice of bishoping; still, it was years ago, and before they knew better; but that now they condemned the practice. Dr. Hawley stated that many horse buyers for some unknown reason would not purchase horses over six years old, that they seemed to think that as soon as a horse was seven years of age he was on the down-grade of life. Consequently there was no market for an eight- or nine-year-old horse, and many large sums of money were lost to the farmer and dealer through the buyer's opinion, while we knew that a horse was in his prime at from eight to twelve or even fourteen years, providing his care had been good. For this reason he thought that to bishop an eight-year-old horse to a six was not a swindle and not an imposition upon the buyer; that the horse is just as serviceable to the last owner as a six-year-old, and more money could be gotten for the animal, which would be a greater benefit to the stock raiser as well as to the dealer. He would not bishop an old animal, as he would not consider this honest. This subject was discussed by Drs. Hawley, Sayre, Robertson, E. L. Quitman, and Campbell. Dr. Merillat asked if anyone had ever filled a dog's teeth. Drs. Sayre and E. L. Quitman replied they had had some experience in this

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line. Dr. Merillat said he had been called upon to sharpen up the teeth of an old "bull dog," to aid in his fighting qualities. On motion and vote, the discussion was closed.

A proposal and motion were made by Dr. A. H. Baker, seconded by Dr. E. L. Quitman (voted and carried unanimously by the Society), "that a notice be sent to the City Press Association exonerating one of the Society's members for the shooting and killing of one Joseph Kramer, as follows:

WHEREAS, One of our members, Dr. A. C. Worms, has had the misfortune to accidentally shoot and kill a thief, Joseph Kramer, caught in the act of stealing the blanket off his horse, while attending a case in the practice of his profession, and has been held to the grand jury by the coroner's jury for murder; be it

Resolved, That this Society from the evidence at hand exonerates Dr. Worms from intentional criminality in this unfortunate accident.

Dr. Worms stated to the Society that he was running after the thief with his pistol in his hand, when it was accidentally discharged. That he had twice called to the thief to halt before the discharge, although at the time of the discharge the thief did not have possession of the blanket, which had been dropped. Dr. Worms was 125 feet behind Kramer in a rough alley, and as it was 10.30 at night and very dark, he was not aware that the bullet had hit Kramer, who continued to run for one and a half blocks when he fell backward, dead. No more shots were fired, this being good evidence that Dr. Worms did not intend to shoot Kramer. There were no witnesses to the shooting. Dr. Worms remained by the corpse until the police came. The coroner's jury held him on his own evidence, this being that the shot was not fired until after the blanket had been dropped by Kramer. Dr. Worms was allowed to sleep at home under the care of an officer until the following day, when he was released on $5000 bail. Many strangers have called on Dr. Worms since the shooting and are willing to testify at the trial that they were well acquainted with Joseph Kramer, and, although only twenty years of age, that he had been a sneak-thief for ten years.

Motion by Dr. Hughes, seconded by Dr. E. L. Quitman, that at our next regular meeting, January 14, 1897, the members of this Society hold a banquet at the Sherman House, and that the regular programme be carried out at the banquet table. Voted and carried.

Motion by Dr. Hughes, seconded by Dr. E. L. Quitman, that the Secretary be instructed to send invitations to all the members of the Society to attend this banquet.

No new members presenting themselves, adjournment was in order.

LAWRENCE CAMPBELL,
Secretary.

A meeting of the Iowa State Veterinary Medical Association will be held on January 13 and 14, 1897. Papers on the following subjects will appear on the programme: "The Relation of the Veterinary Profession to the Public Health," "Parasitic Diseases in Sheep," "Duties of the State Veterinarian in Iowa," "Azoturia," "Fungoid Growths," "On the Contagium of Tuberculosis," "The Thermo-cautery in Veterinary Practice," "Serum-therapy in Hog-cholera" by Dr. Peters, and "Experiments with Barium Chloride in the Treatment of Colic."

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

(Continued from page 801 November number.)

Dr. John A. Bell, of Jefferson County, read a very interesting report of his county, showing that Watertown has a live board of health, and the members of the Society felt that the local board of health should be complimented for having as its sanitary officer so efficient a member as Dr. Bell. The report of Jefferson County is as follows:

"As committeeman for Jefferson County, N. Y., I am pleased to inform you that I live in a section of the county so far north that we are nearly free from contagious diseases. During the year 1895 we had three small outbreaks of anthrax in cattle, from which fifteen cows died, but so far this year, 1896, we have been entirely free from the disease.

"Regarding tuberculosis and the work done in that line in my section of the country I concluded to give you a synopsis of the workings of our board of health and the regulations governing the sale of milk, hoping that it will be of interest to some of you.

"Watertown is a city of 22,000 people, situated in Black River Valley, ten miles from Lake Ontario, and twenty-five miles from St. Lawrence River, in one of the best and most healthful dairying sections of the State. The climate in summer is mild, in winter severe, the thermometer falling sometimes to 15° below and occasionally to 25° below zero.

"In 1893, to preserve the cleanliness and purity of the milk, eliminate diseased cows and known impure and foul odors, the city board of health appointed me a veterinary inspector to supervise and inspect the supplying dairies and the vending of the milk to customers. The effect was largely experimental. There were then no regulations governing the supervision, and in consequence it had but little effect among the dairymen. The result was mainly instructive to the board in formulating the methods and supplying the remedies provided by the present system. In February, 1895, after a three months' careful study of the different features of the matter, with the aid of leading dairymen and milk-experts of the county, the board adopted the present regulations, which went into effect May 1, 1895, and appointed me its veterinary inspector.

"The regulations treat the subject of supervision under three heads: Duties of vendors, duties of producers, and duties of veterinary inspectors.

"*Duties of Vendors.* The vendor must obtain a license to sell, and the dairy must be examined and comply with the regulations before the license is issued. The license bears a serial number, which, with the word 'licensed' and the year, appear on each side of his wagon on plates furnished by the board; for example: '12, Licensed, 1896.' The license expires and must be renewed on the first day of each year. Renewals are governed by the same rules as new licenses. He must notify the health officer of the city of all cases of fever and contagious disease in his family and in those families where his milk is produced or cans washed, at once as they occur, and report on the first of each month to the inspector on blanks furnished by the board all such cases of sickness, whether he gave such notice to the health officer, what 'regular' and what 'emergency' dairies he sold from, and the number of cows added to the regular dairies during the month. The regulations are posted in all the dairy barns. The sale of milk at stores and stands must be under a permit naming the vendor furnishing it.

Cans must be washed without soap, salt being recommended; the last application being to scald with boiling water.

"*Duties of Producers.* Stables must be well ventilated with air-shafts from near the floor to the roof as foul-air outlets, well lighted and aired, kept whitewashed, clean, and dry, with trenches behind the cattle at least eight inches deep to receive the excrement; milkers to use no moisture on hands or teats while milking; dirt removed from the body of cow before milking.

"All milk must be thoroughly and slowly aërated in pure air by its exposure thereto in small quantities at a time, without ice or cold water, as soon as it comes from the cow and before cooling. In no case shall milk stand or be aërated in the stable, or in any building or place affected by stable or other foul or impure odors or air. The erection of small separate buildings for aërating in places surrounded with pure air is recommended.

"Cows must be fed on wholesome food and pure water, and be kept well cleaned. Milk must not be sold from any diseased cow.

"*Duties of Veterinary Inspector.* He is charged with the enforcement of the regulations. He must make two general inspections a year of all dairies and their surroundings, examining cattle as to health, cans, cattle, and stables as to care, and special inspections where and as need be. He examines dairies for and issues the licenses, and keeps the records belonging to the system; supervises the examination of the milk, reports monthly to the board upon all matters during the month, and makes an annual report at the end of the year.

"Any violation of the regulations is a misdemeanor, punishable as such. The board may also punish violations by revoking the license. The entire expense of the system is borne by the city, there being no law by which the milkmen can be made to share it.

"*Results of the System.* The adoption and operation of the system first met the determined opposition of some of the milkmen; a few were in favor and many were indifferent or sympathized with the opposition. Petitions were made and hearings had for its abandonment, as unnecessary, without precedent anywhere else, an innovation and wrongful interference with private right; that from experience and interest they were better fitted than the board to look after such matters. Opposition has now ceased and all have given it their willing support.

"We believe we are among the pioneers in supervising the sources of the public milk-supply, and that, from our own experience, such supervision is of the highest importance from a sanitary point of view.

"After the system had been in operation a little more than one year stables that were dark, ill-ventilated, covered with cobwebs and dirt, with poor or flat floors, without sufficient drop or trench to receive the excrement, have been given light, ventilation, cleanliness, new floors, with sufficient drop to keep the cattle clean, have been whitewashed, bedded, received better care generally; cattle better cared for and cleaned; the milk, which was often allowed to stand in the stable over night and not aërated at all, is now all properly aërated and kept entirely separate from the stables and stable odors.

"The publication of reports of the condition of stables and care of dairies and milk makes it necessary for the careless dealers to emulate the careful owners in order to hold their customers.

"About fifty dairies, numbering about 1000 cows, supply the city with milk and cream.

"The following improvements are taken from my annual report, made January 1, 1896, after the system had been in operation eight months: Stables whitewashed, 22; stables given better light, 18; stables given better ventilation, 17; stables given new floors, 11; stables given new ceilings, 7; stables given new linings, 2; new stables, 2; new aërating buildings, 8. All milk properly aërated in separate buildings.

"*Tuberculosis.* In 1895 the board made a bacteriological examination of the entire milk-supply, and discovered the presence of tuberculosis in the milk of 15 dairies, numbering 281 cows. The State board of health, upon request of the local board, administered the tuberculin-test to these 281 cows and found 8 cows afflicted with tuberculosis, which the State killed and paid for, all the animals killed showing evidence of the disease post-mortem.

"In two dairies the tuberculin-test disclosed no tubercular reaction where the bacteriological examination showed the presence of tuberculosis in the milk. The tuberculin-test showed that nearly 3 per cent. of the cows examined were tuberculous, and in addition marked 6 cows as suspicious cases.

"The board is fully awake to the danger of tuberculosis, and firmly believes in the efficacy of tuberculin to detect it. Its purpose is to examine for tuberculosis once a year, and also, in the interim, the newly added cows, which the vendors' monthly reports show will be about one-third of the dairies each year. Upon the failure of the State appropriation made to eradicate tuberculosis, the entire expense falls upon local boards, as is the case this year, as no law provides for killing or paying for the tuberculous cow, except when the State is making the test. We find this our greatest stumbling-block: What shall be done with the diseased cow? Her existence is a peril, and her use cannot be officially watched and prevented.

"The board believes that when bacteriological examination shows tuberculosis in the milk of a dairy, it has discovered a nuisance, a menace to health, and the dairymen should then be at expense of locating it and eradicating it, of abating the nuisance, as in the case of any nuisance, the work to be done by an expert under the approval of the local board; that when the tuberculin-test locates the disease in the cow the local board should have the power to kill the cow, the loss of the animal to be borne by the owner if post-mortem shows disease, and by the local board if not diseased; and that a law should be passed conferring such powers and imposing such duties, and we urge upon this Society that it take such steps as lie within its power toward securing proper legislation on this subject.

"*Meat-inspection.* No method of meat-inspection has yet been adopted, the expense having thus far stood in the way. The board favors a public slaughter-house where all animals should be killed under official supervision and where the rendering shall be done, and all meat brought into the city for sale, except that receiving government inspection, shall be examined. Slaughter-houses are now under the supervision of the board, but the results are unsatisfactory."

The discussion was taken part in by Drs. Berns, R. R. Bell, Crowforth, Cowie, W. L. Williams, and Huff.

The report of New York County, by Dr. O'Shea, is as follows:

"As County Secretary I beg leave to submit the report from New York County: Veterinary education has taken a decided step in our colleges in this city by an increase in the State requirements, it now being necessary for a student to pass the State Board of Regents' veterinary preliminary examination, and before receiving a certificate must gain twenty-four points. This requirement is to be further increased to forty-eight points, commencing with the session 1897–98. This means four years in a high school before entering college, and with the three sessions means a study of seven years before becoming qualified to practise.

"Our local board of health recently passed an ordinance requiring all milkmen to take out a license. They are also testing with tuberculin all the cows in the city, numbering about 3500; they are producing at present diphtheria antitoxin, mallein, tuberculin, and antitetanin.

"One fact I wish to bring before this Association is, that the meat- and milk-inspectors appointed by the health department are not veterinarians, and, in my mind, some action should be taken by this Association in the matter.

"The number of veterinarians at present employed in official positions in this city is as follows: City health department, 2; street-cleaning department, 5; fire department, 1; police department, 0. The United States department of agriculture employs 7 veterinarians as meat-inspectors at the various abattoirs.

"As to our experience with the use of tuberculin and mallein as diagnostic agents, we can only say that they have given us positive and gratifying results, and I can say that they are indispensable.

"My experience has been that we have not as yet an antitetanin of sufficient strength to cure tetanus, but as a preventive I recommend its use.

"The mortality in cattle from anthrax has been very materially reduced by the use of anthrax vaccine, although we have very little use for that agent in our large cities, especially in New York.

"The State inspection for the prevention and eradication of tuberculosis has been stopped, due to the lack of money. A bill presented during the last legislation asking for $300,000 for this purpose failed to pass. For the same reason the appraisers who were appointed to appraise and condemn glandered horses were dismissed, and at present no remuneration is given for glandered horses."

Discussion followed Dr. O'Shea's report, and a motion prevailed to draft a resolution under the seal of this Society, to be presented to the local boards of health, petitioning them to employ qualified veterinarians on the boards.

Resolution. The New York State Veterinary Medical Society, in annual convention in the city of Buffalo, September 4 and 5, 1896, do represent as follows: *Whereas*, the various positions of meat- and milk-inspectors of the State of New York are now being filled by men who are totally unqualified by education to fill the same; and, *whereas*, the public interests in these respects are suffering in consequence of such conditions; therefore, be it *Resolved*, that this Society respectfully petitions the said authorities to place in control of these important services none but graduates of recognized veterinary colleges.

Dr. Wilson Huff, county secretary for Oneida County, rendered an oral report, giving details of the sanitary requirements imposed by the board of health of the city of Rome on all dairymen who deliver milk in that city. The requirements are quite exacting. Dr. Huff is the sanitary inspector of dairies for the city. His work is giving the inhabitants of Rome pure, wholesome milk.

Oral reports were made of several other counties. They were consensual in the main that if the consumers of flesh- and dairy-products were properly protected against disease through the medium of these foods, it must of necessity be at the hands of the veterinarian.

A motion prevailed, signed by Drs. O'Shea and Baker, to amend the By-laws, Article VIII., Chapter I., relative to annual dues, to read as follows: "The dues shall be three dollars per annum, payable in advance." It was ordered spread upon the minutes to take its regular course at the next annual meeting.

Also a motion prevailed, signed by H. Sutterby and W. L. Baker, to amend Article VIII., Chapter I., of the By-laws, to read as follows: "The application of a candidate shall be accompanied with the initiation fee of five dollars and the first annual dues of two dollars, and if elected the money so received shall be appropriated to the use of the Society. The elect, after signing the By-laws and Constitution, and upon the presentation of the Secretary-Treasurer's receipt for the amount named, shall be presented by the Secretary with a copy of the By-laws and certificate of membership. If the candidate be rejected, the money so received shall be returned to him."

The Board of Censors reported favorably the following applicants: F. C. Gernside, Mt. Morris; Harry D. Gill, New York; G. C. Kister, Holly; John T. Liddle, West Shelby; F. D. Markham, Utica; J. O. Moore, Wilson; Charles John Mulvey, Moore's; J. A. McCrank, Plattsburg; W. H. Pendry, Brooklyn; Romanzo Perkins, Hardy's; W. L. Williams, Ithaca; Mark D. Williams, Middleport.

A motion was carried to suspend Section 3 of Article V., relative to the election of candidates, and that the candidates presented be received into the Society by unanimous consent.

A motion was carried to levy an assessment on the members of sufficient size conforming with the By-laws to meet the obligations of the Society, and that half of the requisite amount shall be collected during the years 1896–1897, but members elected at the annual meeting of 1896 shall be exempted from said assessment. Meeting adjourned.

SECOND DAY, SATURDAY, SEPTEMBER 5TH, 9 A.M.

Meeting called to order by the Secretary. Dr. R. R. Bell was asked to preside, Dr. Hinkley being absent. Unfinished and miscellaneous business was taken up. Letters of regret were presented from Drs. Latourell, of Yonkers; Giffen, of New York City; L. McLean, of Brooklyn; and J. W. Darby, of Fort Plain.

The resignation of Dr. J. H. Ferster, of New York City, was offered. A motion prevailed to lay the matter on the table, with instructions directing the Secretary to communicate with Dr. Ferster to ascertain the cause and report at the next annual meeting.

Dr. Crowforth, of Lockport, presented grievances relative to a paper read by him at the last annual meeting of the Society, on the ground that his paper did not receive professional recognition after the same had been solicited by the editor of the JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES. The JOURNAL, after receiving Dr. Crowforth's paper, refused to publish it, accusing the author of plagiarism. Drs. George Berns and John Wende held to the opinions, which were coincident, that Dr. Crowforth's complaint was out of order. The chair, Dr. R. R. Bell, overruled these opinions, on the ground that Dr. Crowforth was a member of the Society; that he had been asked by its President to prepare and read a paper, he had complied, which made his paper Association property, and he was entitled to be heard. Dr. Crowforth asked to be allowed to re-read his paper, that the members present might judge of its merit. The chair concured. After the paper had been read the Society ordered it laid on the table.

It was moved to proceed with the regular order on the programme: Reading of professional papers was in order. Dr. Thomas Giffen, of New York, was called to read a paper on "Veterinary Education;" absent. Dr. George H. Berns was called to read a paper on "Navicular Disease in Horses," but Dr. Berns asked that his paper be held over for the next regular meeting, and the chair so ordered. Dr. J. P. Thompson, of Niagara Falls, was called to present his paper on "Jurisprudence;" absent. Dr. Wilson Huff, of Rome, read his paper, "Bacteria in Milk," which was listened to with interest and heartily received. The chair requested Dr. Pendry, of Brooklyn, to open the discussion. In doing so the doctor gave some of the details of dairy-inspection in Kings County as required by the health department of Brooklyn. He spoke earnestly of the needs of a pure and uncontaminated milk-supply for our cities and of the many insidious conditions which expose it to infection, and thought the Society should use its best endeavors to procure such legislation as would establish systematic inspection, quarantine, and fair indemnity throughout the State for all cattle condemned and slaughtered as suffering with contagious and infectious diseases. Dr. W. L. Baker, of Cortland, related some of the conditions surrounding the dairy interests of Cortland County, and called special attention to one dairy near the city of Cortland that was selling its product in that city until a clinical inspection revealed that the herd was tuberculous; the health board then refused the milk, but it is now being sold in New York City. Dr. John Wende spoke of the character of some of the infantile diseases in Buffalo, and stated that 75 per cent. of the deaths of children from enteric troubles was due largely to unclean nursing-bottles with long nursing-tubes, and believed there would be much less enteric trouble among children if mothers and nurses would use the utmost caution in cleaning them. The discussion on Dr. Huff's paper was instructive and interesting. The doctor was given a vote of thanks for his very able paper. A paper entitled "Veterinarians as Sanitarians" was read by C. D. Morris, after which the meeting adjourned for lunch.

AFTERNOON SESSION, SATURDAY, SEPTEMBER 5, 1896.

Meeting called to order at 1.30 P.M., Dr. R. R. Bell in the chair.

A communication was read which had been sent to the Secretary from the Cosmos Club, of Washington, D. C., soliciting funds to aid in the erection of a monument to the memory of M. Pasteur in Paris. The Society directed the Secretary to open a subscription, asking for an amount between twenty-five and fifty cents from all the members, to give a receipt for and keep a record of the same.

The chair appointed Drs. H. Sutterby and H. S. Wende as Auditing Committee to verify the financial accounts of the Secretary for the current year.

After a brief discussion relative to the place for the next annual meeting, the Society decided to go to Syracuse.

The Auditing Committee reported Secretary-Treasurer's accounts correct.

Thus ended one of the most profitable and enjoyable meetings this Society has ever held, from the view-point of numbers and interest.

CLAUDE D. MORRIS,
Secretary.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

THE meeting was convened at Kansas City on Wednesday, October 7, 1896. President Stewart called the meeting to order. Some thirty members were present at the call of the roll. Two new members were admitted to membership.

Owing to the illness of Dr. C. J. Sihler, his paper was not presented.

Dr. R. H. Harrison read a paper entitled "The Human Subject and Animals, their Relationship in Disease." This paper provoked an interesting and instructive discussion.

Dr. L. Enos Day presented a paper for consideration on "Surgical Repair," and Dr. F. W. Hopkins on "Our Profession," both of which were discussed.

President Stewart entertained all present by an interesting account of the Buffalo meeting, reviewing the great work accomplished and its influence for good on future meetings of the Association.

The meeting adjourned after a very profitable session, to meet at the same place on December 9, 1896.

The eleventh regular meeting was held in Kansas City, Mo., Wednesday, December 9, 1896, in Room 23, Masonic building. The meeting was called to order at 7.30 P.M., by President Stewart. The following members responded to roll-call: Drs. Sihler, Barth, Stewart, Harrison, Black, Moore, Kaupp, Day, Hopkins, Bray, and Hunter. Visitors: Drs. Schafter, Allen, Patten, Milnes, and Ovens; and Messrs. Freeman, Cooper, Conrad, Leper, Moore, Pouppirt, Wright, Simpson, and Cowden. The minutes of the last meeting were read and approved.

A communication from Dr. N. S. Mayo was read relating to "Cerebritis in Horses," caused by eating mouldy or wormy corn.

Dr. Schafter was elected to membership.

The committee reported the charges against Dr. J. H. Wattles for unprofessional conduct, being a violation of Article VI., Chapter V., of the Code of Ethics, and, upon motion duly seconded, Dr. Wattles was expelled from the Association.

Excellent papers were read by Drs. C. J. Sihler and Benjamin Kaupp, and were fully and freely discussed.

President Stewart interested the members in the parasite commonly called "Fluke," by a short talk, illustrating the subject by drawings and preserved specimens.

After a most profitable time well spent, the meeting adjourned to meet in Kansas City, Mo., in February, 1897. Essayists for next meeting, Drs. Barth, Schafter, and Harrison.

S. L. HUNTER,
Secretary-Treasurer.

The Ffteenth Annual Meeting of the Michigan State Veterinary Medical Association will be held in Lansing, February 2, 1897. The programme, in addition to Reports of Committees on Intelligence and Education and Diseases, will be added to by a series of operations by various members, among others the "Operation for Roaring," "Spaying a Mare," "Tarsal Tenotomy for Sprain," "Median Neurectomy for Diseases of Fetlock Joint," "Castration of Ridgling Horse."

U. S. V. M. A.—President Osgood has just announced his appointments on the Executive Committee for the ensuing year, as follows: Chairman, W. Horace Hoskins, Leonard Pearson, D. E. Salmon, N. P. Hinkley, L. H. Howard, W. L. Williams, and C. A. Cary.

A movement is on foot to establish a veterinary association in North Carolina. Dr. J. W. Petty, graduate of the National Veterinary College, is actively interested in the movement, and we hope that after its consummation it will be possible to secure legislation for the veterinarians in that State.

Important veterinary meetings—Maine Veterinary Medical Association at Bangor, January, 1897; Chicago Veterinary Society, January 14, 1897; Oneida County Veterinary Medical Society at Rome, February 2, 1897.

COMMENCEMENT EXERCISES.

ONTARIO VETERINARY COLLEGE.

THE regular midwinter examination was held at the College on December 22d, when the following successful candidates obtained the diploma of the school: F. G. Atwood, Minertown, Conn.; A. McKay, Brock, Ottawa, Ontario; Eugene Elwood Burdick, Ashaway, Rhode Island; A. Edwin Dennis, Kinsale, Ontario; John P. Fitzgerald, Mount St. Louis, Ontario; Joseph Gregg, Little Britain, Ontario; Henry F. Hartnett, Brooklyn, N. Y.; Jeremiah J. Keleher, Pembroke, N. Y.; George H. Leslie, Ottawa, Ontario; David F. Luckey, Perryville, Missouri; A. R. Metcalfe, Van Kleek Hill, Ontario; G. H. Munro, Carluke, Ontario; Joseph Nelson, Bath, Ontario; Walter H. Orme, London, Ontario; James E. Smith, Webster, N. Y.; Joseph Tefler, Milton, Ontario; G. A. Wehr, Andreas, Penna.

The castration of Angora cats, where the long hair covers the scrotal sheath, makes necessary the close removal of the hair. A recent case operated upon at the Philadelphia Veterinary Sanitarium was sent home after twenty-four hours, apparently in good condition for the completion of the healing process. The suppuration of the parts became thoroughly matted with the hair, and proper retraction of the cords was hindered by becoming engaged in the lips of the scrotal incisions, and tension on the cords produced, giving rise to pain and discomfort. The thorough anointing of the parts and removal of the accumulated mass, with a reopening of the incisions, permitted the healing process to be completed without further incident.

PERSONAL.

AMONG those specially interested in the Normandy cattle shown at the National Live-stock Show at Madison Square Garden, New York, in November, we noted on one of the pens a card of our esteemed colleague, Prof. A. Liautard.

Dr. A. S. Wheeler, of New Orleans, has been resting for a period at Asheville, N. C.

Another New York Canine Infirmary was opened on January 1st, under the direction of Veterinarians Huidekoper and Gill.

The December number of the *Horseshoers' Journal* contains articles by Veterinarians Harger, of Pennsylvania, and James Robertson, of Illinois.

Mr. R. A. Pearson, assistant chief of the dairy division of the Department of Agriculture, was an interested visitor at the National Live-stock Show.

Dr. Bryant, of Kansas, arrested in New York City in November for violation of the State veterinary law, pleaded guilty at the hearing and was paroled for sentence.

Since the removal of Dr. E. H. Flood from the post of inspectorship of cattle for foreign shipment, for disobeying Federal instructions in overloading vessels, the duties have been performed by inspector of export meats, Dr. Charles Schauffler. Several applicants for the place are already in the field.

Drs. Adams, Pearson, Hoskins, and McAnulty spoke encouraging words to the class assembled in December at the opening of the Philadelphia School of Anatomy and Scientific Farriery at the Veterinary Department of the University of Pennsylvania. Dr. Hoskins will address the students' society in January.

Dr. Davison, of Millbrook, N. Y., exhibited his Shropshire ram Ringleader in the show circuit from Syracuse to St. Louis and back to the Madison Square Garden Show without the loss of a first prize in any of the shows.

Veterinarian A. S. Alexander, of Evanston, Ill., was a special contributor to the Christmas number of the *Breeders' Gazette.*

Dr. M. E. Knowles has returned to Butte City, Mont., where he will engage in private practice.

Veterinarian W. S. Manley, of Arkansas City, reports the removal of a misplaced molar from the base of the right ear in a two-year-old filly.

Dr. C. C. Cattanach, while abroad during the past summer, had with him one of his famous mules, Carmencita, with which he travelled over a goodly portion of Great Britain.

Veterinarian R. W. Carter accompanied the running horses of Mr. Pierre Lorillard on their campaigning tour through England.

An interesting group noted at the recent Madison Square Garden Show was Secretary Dr. G. Howard Davison, of the National Live-stock Association; Veterinary Inspector R. S. Huidekoper; Prof. H. D. Gill, of the New York Veterinary College, and Editor W. Horace Hoskins, of the JOURNAL.

Dr. Dowd, of Kansas City, has been transferred by the Bureau of Animal Industry to an inspectorship of the Gray's Ferry abattoir in Philadelphia.

The Philadelphia School of Anatomy and Scientific Horseshoing opened its third session on December 1st. The instruction will be given at the Veterinary Department of the University of Pennsylvania, and the valuable services as lecturers have again been obtained of Drs. Harger and Adams.

Dr. F. H. Miller has located on Forty-second Street, New York City, where he will give sole attention to canine practice.

Dr. R. S. Huidekoper was an exhibitor in the Brooklyn Kennel Show of his famous bull terriers, and fresh laurels were added to their former victories.

Among those interested in porcine breeding we note Messrs. Butler, of Mississippi, and Gill, of New Jersey.

Quite a group of veterinarians watched the proceedings in court of the test of the law in the case of Dr. Bryant, arrested in New York City. The decision sustaining the law is to be followed by proceedings against a large number of non-registered violators in New York County and other sections of the Empire State. Laws that are openly violated are worse than no laws at all, for they breed contempt for statutory powers, and we trust that prompt punishment will be meted out to these parasites of the profession.

Dr. R. O. Lusson, of Ardmore, Pa., has received an appointment as an inspector under the Bureau of Animal Industry, and has been assigned to Buffalo.

Dr. Tait Butler has severed his connection with the Agricultural College of Mississippi, and Dr. Joseph C. Robert, graduate of the University of Pennsylvania, has succeeded him as Professor of Veterinary Science in the school.

State Veterinarian Leonard Pearson has become an active member of the State Grange in the Keystone State.

Veterinarians Williams, of Ithaca, N. Y., and Noack, of Reading, Pa., were on the sick list in December, but are now in active pursuit of their labors.

President Ridge, of the Pennsylvania State Veterinary Medical Association, will present a paper at the February meeting of the Keystone Veterinary Medical Association.

Dr. James T. McAnulty, Secretary of the Pennsylvania Association of Master Shoers, which is now a chartered organization, secured favorable indorsement by the Keystone Veterinary Medical Association of the bill to require registration of master and journeymen shoers, which will be presented at the next session of the State Legislature.

Dr. William Tag, of Philadelphia, continues on the sick list, and is at times unable to pursue his daily professional duties.

The invention of the new military bridle and bit by Veterinarian Austin Peters, lieutenant of the State Militia of Massachusetts, is attracting the attention of all the leading horse-journals of the land.

Bulletin 62 of Purdue Experiment Station, entitled "The Udder of the Cow," has just been issued by Prof. C. S. Plumb.

Dr. James K. Thompson, of Pueblo, Col., has left for a trip to Ireland.

At a meeting of the New Jersey State Sanitary Association, held at Lakewood on December 11th, papers were presented by Dr. Wm. Herbert Lowe, of Paterson, on "Infectious Diseases Among Animals;" by Edward B. Voorhees, Ph.D., of New Brunswick, on "Milk: How it should be Collected, Transported, and Stored;" and by George W. McGuire, State Dairy Commissioner, on "Inspection of Dairies." Dr. Wm. H. Lowe was elected a member of the New Jersey State Sanitary Association at this meeting.

Messrs. Carter and Waugh, of Pittsburg, will add a light ambulance to their hospital and will manage it on the patrol system, with horses in readiness to move at a moment's notice.

Dr. Hugh F. Doris, a graduate of the American Veterinary College, later a student of human medicine for three years, is now taking a course of law at the University of West Virginia. He has succesfully filled at the last college the *rôle* of captain and trainer of the foot-ball team.

Dr. Joseph M. Good, of Chattanooga, Tenn., is planning for a milk- and meat-inspectorship for his city.

Dr. Leonard Pearson addressed the Students' Society at the Veterinary Department of the University of Pennsylvania on December 18, 1896.

Dr. A. F. Peters, of Lincoln, addressed the December meeting of the Nebraska Jersey Cattle-breeders' Association on "How to Replenish the Dairy-herd." Dr. J. S. Anderson, of Seward, reported his experience with an outbreak of "Texas Fever" in a herd shipped from Arkansas to Nebraska.

Dr. J. C. McNeil, city veterinarian of Pittsburg, was a recent visitor to Philadelphia, where, with other officials of the Smoky City, an inspection of the police and fire departments was made.

Dr. Robert Formad, of Philadelphia, recently completed a short brochure on the more prominent animal diseases transmissible to man.

Robert W. Ardary, V.S., is constructing a veterinary infirmary in Pittsburg with all modern conveniences.

Veterinarian H. J. Hancock, of Pittsburg, is spending the winter at Canfield, Ohio.

Pennsylvania possesses five brothers in the active practice of veterinary science, who are successively the ages of 77, 72, 65, 63, and 61. They are well-known, successful practitioners, and honored by the communities where they reside, respected by all who know them, and much loved for their honorable methods as members of the veterinary profession.

The Governor of Massachusetts has appointed Dr. Austin Peters a member of the Cattle Commission in place of Dr. F. H. Osgood, resigned. Mr. Leander Herrick has resigned the post of Secretaryship of the Commission, and the official reorganization of this body has resulted in the selection of Dr. Austin Peters, Chairman, and Dr. John M. Parker, Secretary.

Veterinarian Waugh, of Pittsburg, was recently detailed by State Veterinarian Pearson to examine a suspected tuberculous herd of cattle in Westmoreland County.

GLEANINGS.

An early reduction in the price of tetanus antitoxin comes to us as news from the Pasteur Vaccine Company, a 10 c.c. bottle to cost one dollar. According to Professors Roux and Noaard, 50 c.c. should be injected as soon as possible after tetanic symptoms appear, a further injection of 20 c.c. to be given the next day, if necessary.

Streptococcic antitoxin, for use in anasarca, will shortly be placed on the list of specific curative remedies.

Powdered wood-charcoal is one of the best remedies to give to dogs that have suffered from worms and have undergone treatment for the same. It hastens a more healthful condition of the intestinal tract and tends to arrest the tendency toward their redevelopment. As its action is almost wholly mechanical, it may be given very freely.

Celluloid finely chipped and dissolved in acetone (1 : 4 by volume) is recommended as a substitute for plaster-of-Paris in bandages. Make in a close-stoppered bottle and stir well. Rub it well in after each layer of bandage. A kid glove may be used to protect the hand. It weighs but one-quarter as much as plaster-of-Paris, is very elastic, easily kept clean, and impervious to moisture.

Citrate and lactate of silver promise to be very important antiseptic agents in the treatment of wounds and for subcutaneous injection in anthrax or anasarcous conditions in equine practice. Their freely soluble nature and their non-irritant and non-poisonous properties highly commend them. Claimed to be more powerful than corrosive sublimate in the destruction of germ-life, their freedom from odor, so offensive at times with iodoform, and their ready permeability of all tissues, commend them in superiority to these last well-known agents. They may be used in powder, ointments of 1 to 50 or 100 parts of vaseline, in solution for wounds of the strength of 1 to 4000 or 5000; as a throat-spray or bath, 1 to 5000 or 10,000.

The Iceland pony mare belonging to Main's Circus recently gave birth to a colt weighing but eight and one-half pounds, measured eighteen inches from nose to tip of tail, and stood 2.3 hands high. It is said to be strong and healthy.

LIGHTS AND SHADOWS.

A Philadelphian, graduate of one of our leading veterinary schools, advertises information of a valuable character to owners of horses affected with fistulous withers. As yet he has not been known to give forth his discovery to the scientific veterinary world.

Some Orloff (Russian) trotting-mares are on their way to this country.

Every Eastern veterinary college seems to have received a full quota of veterinary students for the present year, and in 1897 there promises to be the largest number of students for many years, most of whom are equipping themselves for the veterinary sanitary police field of work.

The dismissals from the Bureau of Animal Industry at Omaha are said to have been ordered for "offensive partisanship" and the allowing of the same to interfere with official duties.

The first-year class of the Kansas City Veterinary College numbers some ten students, who are reported doing excellent work. The new graded course commenced the present session is being carried out and promises good results.

France continues, through her agents on this side, to be a large purchaser of American horses.

The Christmas number of the *Buffalo Horse World* presents to its readers an interesting galaxy of the noted speedy ones for 1896. It is an impressive review of the work of the trotters and pacers, and must add to the admiration of these pleasure-givers, health-invigorators, and money-winners to the great majority of all our people, who will never want to unlearn the lesson of love and admiration for the noblest animal on earth.

The noted Jersey bull, Pedro, lived to the ripe old age of nineteen years.

The Christmas number of the *Breeders' Gazette*, aside from its wealth of interesting reading matter, is one of the most handsomely illustrated numbers of any live-stock periodicals ever issued. The selection of noted animals and herds of live-stock of the highest types of breeding and of the greatest value is a great stimulus to the whole live-stock industry, and those engaged in this form of occupation owe a large debt of gratitude to the publishers of this valuable journal.

The half-hour talks by members of the several allied professions in special lines of work, given at the monthly meetings of the Keystone Veterinary Medical Association, are proving of the greatest interest and awakening many of the old members of the Association to renewed interest.

DRIFT OF THOUGHT.

THE popularity of cycling and the good effects on the health of its devotees from exercise in the open air is now awakening a keener interest in horseback riding than ever before. All the popular Eastern seaside resorts the past summer gave employment to an unusually large number of riding-masters and instructors, and the riding-schools in the Eastern cities are full to overflowing. Its good influence in 1897 will prove a boon to the horse-market and likewise to the carriage and fancy trap builders.

Another veterinarian proposes to enter the field of proprietary medicine in the early spring, and, not to be outdone by any of his competitors, will send out a coupon with each package of his nostrums, which, for a two-cent stamp, will insure the purchaser of each package a free consultation; and, as this will sell another of the same make, it promises to outrank the wager-plan or "money-refunded" scheme. Wait for the reaction.

The *Breeders' Gazette* of December 23d makes a strong appeal for the establishment of a complete veterinary college at the State Agricultural College at Champaign, Ill., and believes that the time is opportune, the need great, and urges action upon all those interested. It demands a school of the highest character and complete in every department of veterinary science. We are strongly inclined to look for the best results and the greatest permanency of veterinary institutions as departments of State universities or agricultural colleges.

The canton of Zurich has decided to prohibit the importation of American canned meats by adopting a regulation forbidding the use of borax as a meat-preservative. Some remote scientific cause must be found for cutting off this valuable trade of the live-stock growers of our country, while exporting to us beet-roots, adulterated wines, our own cotton-seed oil as olive oil, etc. When will our people learn how to deal with these injured innocents who cunningly drain away our millions?

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THE CATTLE-TICK PLAGUE: PREVENTIVE TREATMENT.

BY COOPER CURTICE, VETERINARIAN,
MORAVIA, N. Y.

WHILE endeavoring to prevent animals from contracting communicable disease, two plans have been conceived and acted upon. Each of these has been to a degree successful. The more important of these consists in keeping the disease from spreading beyond the animals or place in which it is discovered. The other prepares the systems of individual animals to resist disease by either producing a modified form of the disease in them, or by the injection of material into their veins which is designed to entirely prevent or at least to ameliorate attacks otherwise fatal.

When Jenner taught the medical profession vaccination against smallpox he conferred upon mankind the greatest medical benefit of his time, and rightly became immortalized. Yet, however much credit be due to vaccination in restricting the spread of smallpox, far more is undoubtedly due to the strict quarantine measures which have since been taken in the preventive treatment of the cattle-tick plague officially termed "splenic fever," Southern fever of cattle, or Texas fever by the United States Bureau of Animal Industry. But one of these plans has to any extent been tried by man, viz., the quarantine of the region whence it spreads during the time of year it prevails. The method by vaccinal treatment prevails largely in nature, but to my knowledge has not been intentionally put into practical use outside of a few laboratory experiments, and the custom of one Southern proprietor. The method was first discussed by Dr. Theobald Smith, in his admirable report on Texas fever in 1893.

To which of these methods must cattlemen and veterinarians of the infected districts look for deliverance from the plague?

Immunity of Southern cattle is conferred upon them either when they are calves by a single attack of the disease or more rarely by one or more mild attacks when older.

That not all in the infected area are immunized is evidenced by the large death-rate from this source. So far as is now known, this immunity is conferred by the cattle being naturally inoculated by ticks. The disease inoculated into calves is the same as that which proves fatal to older cattle, the different results depending on some inherent difference between the young and old. The exposure is unintentional and accidental for the most part. It is more certain to occur when ticks are uniformly on all farms, and less where many are entirely free. In the latter places inoculation and death occur most frequently.

Mr. Benjamin W. Hunt, a wealthy planter of Eatonton, Georgia, says in his catalogue of the Panola farm for 1894: "There is a debt owed to the public by persons who have studied Southern cattle-fever. My experience has been so different from all published information on this subject that I ask its careful consideration. In the first place, a calf raised South is no more exempt from its deadly effect than one raised in Canada. Only after the Southern-raised animal has long grazed upon thoroughly infected pasture-land should it be sold South. Further, there are many places in Georgia where whole farms and parts of farms are not infected at all. I can raise a calf at my race-track or about my barns, and when it is sent to my regular creek-bottom pasture it will be attacked as violently with cattle-fever as a Northern-bred animal. I have long practised giving the fever to every milk-drinking calf, and as the disease is non-recurrent and not dangerous to any young bovine animals, my herd is, I believe, absolutely immune. No Southern buyer should accept any other than an immune animal at any price."

Mr. Hunt has thus intentionally adopted a natural method of inoculation for practical purposes. An inspection of these farms in 1895 showed to me that the race-track and barn fields were not infected by ticks, while the creek-bottom pastures were. The practical value and wide application of this method in the South cannot be gainsaid. Mr. Hunt raises registered Jersey stock and markets them guaranteed against Southern fever. So long as possible customers retain ticks upon their farms, so long as is this his only method. It may well be followed by other cattlemen.

The only other means of producing disease in cattle and consequent immunity is that detailed by Dr. Smith:[1] "Another method of inducing Texas fever is the injection of blood from cases of Texas fever. Such inoculations are apt to result in a mild attack if practised after the hot weather of midsummer." In a foot-note he states that "the Texas fever parasite was carried in the blood of a North Carolina animal three years after leaving the permanently infected territory." Since this was determined by inoculation and subsequent disease, it is evident that the blood could be drawn from healthy previously infected animals. Blood-inoculation experiments undertaken recently by the United States Department of Agriculture, in which the writer was detailed to take charge of the field portion, were more or less successful. In the event of complete success blood-inoculations can never become of wide use, for they are not so available or economic as other methods of attaining the same end. To illustrate: the only demand for it seems to be for inoculating breeding-cattle sent from the North. For best success a central vaccination-farm must be established, or cattle from infected localities taken to the farms where the operation is to be done. Then the blood is to be exchanged and the patient kept under observation for some weeks. All this would seem to require expert-work. The same result may be gained by procuring ticks from Southern infected farms, keeping them in a close-stoppered bottle until the young hatch from the eggs they lay, and then putting the seed-ticks upon the calves. The calves should be kept where the maturing ticks may not be able to infect others. It would be best to pick each as it matures. The adults would serve as material for new inoculations, providing the eggs hatch. About a month's time is required. The vaccination of older cattle is not yet warranted by results. If it is desirable to ship them into the infected territory, there would be no evil results provided they are so handled that they cannot become infected by ticks. The expense attendant upon handling cattle by these natural methods is inconsiderable as compared to that by artificial vaccination. The greatest recommendation of the latter is that, having an immune animal at hand, calves could be vaccinated at any time without risk to others. The risk by the natural method is inconsiderable and dependent alone upon the care of the operator.

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[1] Texas Fever, p. 135.

Inoculation of Northern cattle is necessarily confined to a few high-priced breeding-animals. When Northern cattle are sent South without inoculation, kept upon uninfected farms, and their offspring intended for sale, the method detailed by Mr. Hunt must be followed. Blood-inoculations of young calves in the South can never become popular because of the certainty and cheapness of this method.

Isolation of cattle to prevent the spread of murrain has long been in vogue in the South by many of the more observant cattlemen. Having learned that the disease was carried from farm to farm, they simply stopped admitting strange cattle among their own or purchasing from places whence the cattle nearly always died. The shotgun policy of the West, by which cattlemen prevented the spread of Texas fever in earlier years, is not yet forgotten.

The pressing need of quarantine laws was learned by cattlemen early in the eighties, and through Congress carried into effect, being placed with the Bureau of Animal Industry. Though this law has been more or less imperfectly executed, from various causes, much good has been attained, especially in the handling of infected cattle consigned to the large markets for immediate slaughter. The result has been the almost complete prevention of loss among the susceptible cattle, which constitute the bulk of the trade.

There have annually been losses occurring in various States, even to this year, from violations of the law, cattle being shipped from infected localities through the quarantine, to be pastured or slaughtered at points where no quarantine station exists. Few if any prosecutions have been made in these cases under the federal law.

Early this year (1896) the State of Virginia enacted and passed a live-stock law which, in its coöperation with the federal law, has proved very effective. Where there existed during the previous years weekly violations of the federal quarantine laws and resulting losses from outbreaks, there has not been a single violation since. The few outbreaks that have occurred in that State have either been within the quarantine region or in isolated farms outside, where the ticks persisted from the year before and from which the disease was promptly eradicated through the action of State Veterinarian Dr. E. P. Niles. This example of the service of a good State law, efficient veterinarians, and the coöperation of stockowners illustrates what may be done throughout the extent of the line. Careful observation of the quarantine by railroad companies and stockmen has undoubtedly done more to keep disease from spreading than the inefficiently executed federal laws of previous years.

There is another direction in which greater effort may be made with good results. Cattle may now be taken from quarantine States, fed, watered, and rested *en route* as companies find convenient, and finally delivered to the consignee. Should the stops be where quarantine-pens are located all goes well; but these stations are comparatively few and far apart, and cattle are often unavoidably detained *en route*. To satisfy the requirements of the federal law, which requires unloading of cattle each twenty-eight hours on the road, the transportation companies are compelled to unload whenever they can. Outbreaks from these causes are, however, comparatively rare.

When the cattle are delivered, however, at the terminal station they become subject to local laws, and the federal government seems to lose all jurisdiction, and they are driven to pasture or to slaughter over highways, and often spread disease. To prevent these losses either the cattle should be excluded entirely from all places where suitable quarantine precautions could not be had, or sufficiently strict laws regulating the traffic should be made. In any event State authorities should be notified by the federal officers of the shipment of such cattle and their destination. When ticky cattle are sufficiently guarded at the terminal points as well as *en route* "Texas fever" will be unknown in the North.

Still another source of danger is from cattle driven on foot from one State or county to another across the quarantine line. Although this traffic is becoming less, it is still too frequent where public opinion is not educated in regard to the evil results to the cattle-trade of the uninfected regions, and also in States where the laws are inefficient. Strict maintenance of the quarantine along the three thousand miles of its extent can only be maintained by the coöperation of the people living along it, and this can only be gained by teaching them what the line is and what it is for. The highest duty of officers in such cases is as educators, not policemen. In view of the immense length of the line and the magnitude of the cattle-traffic, there is cause for wonderment that there are so few outbreaks from various causes.

Prevention of the tick-plague within the infected area has not been systematically undertaken in the past. It will more and more enter into the stockman's calculations until there is no longer need. The underlying principles of prophylaxy in the South consist in keeping cattle with ticks separate from others and their walks, in exterminating the ticks, and in immunizing calves as described. They are the same as for Northern localities, but must be thoroughly carried out. The tick is becoming a complete parasite in its habits, living as it does on cattle from the stage in which it emerges from the egg until it drops, completely mature, to lay other eggs, and, undergoing no or very little growth while off cattle, has become completely exposed to the attacks of man. There is no parasite which by intelligent effort can be so easily destroyed. Depending as it does on its immense fertility and the fortuitous return of the bovine host to the place where some other dropped its parent, every effort made by man to reduce the numbers of the adult parasites and the return of cattle to the infected places is met with the highest success in exterminating the pest. When once the cattleman understands that there can be no young ticks excepting as the parents are raised on his or someone's else cattle, and that cattle acquire them because they go where the old ticks have accidentally dropped, the question will be more than half met. To this must be added the fact that ticks do not lay eggs so long as they remain attached.

There are now many farms within the quarantine-area where there are no ticks and where the cattle are as susceptible to the disease as any in the North. To keep these free from disease it is only necessary to keep cattle with ticks entirely away from their pastures and walks, or to remove the ticks before adding them to the herd. Neither should they be sent to tick-infested farms. To keep disease from tick-infested farms, only immune cattle can be driven upon them. New purchases must be from other tick-infested farms or of young calves.

The method of preventing disease by inoculation has been given.

The radical treatment, the extermination of all ticks, is by far the best, most economical, and most effective method yet proposed. The amount of expenditure necessary to free any portion of the country would be more than met by the earnings to that community during the following year.

Until last year little had been attempted in this direction, excepting as farmers, disgusted at the appearance of the ticks, had continually picked them until all were gone. In 1892 Mr. H. J. Wing, dairyman of Georgia Experimental Station at Experiment, cleansed the station-farm by daily picking the ticks. Last year (1895) he supervised the cleansing of an adjoining farm, with the intention of preventing future outbreaks of the plague. Although eight head of cattle had died in 1894, susceptible cattle which were placed on the farm this year did not die, though exposed all summer to all pastures. On the station-farm he mingles cattle from all places, susceptible and unsusceptible, without loss, taking only the precaution of being sure that there are no ticks upon any new cattle when added to the herd. On adjoining farms there are annual losses.

During the last season dairy-herds near Manchester, Va., were kept cleaner of ticks than ever before by daily hand-picking alone, although they were driven upon the open lands where cattle of all kinds mingled. I believe that one of the tickiest farms there was entirely cleansed. The verification cannot be made until the coming season. Having left the work a little before the end of the tick-season leaves me in doubt as to the result.

For dairymen who may own as high as fifty or a hundred cattle the hand-picking method is all that is necessary, unless greasing be utilized to assist the method by keeping ticks off. For this purpose thorough rubbing in with a rag or brush of lard, fish-oil, cottonseed-oil, or West Virginia black oil as often as it is worn or washed off, is all that is necessary. Dr. M. Francis, of College Station, Texas, has been experimenting in dipping cattle in large vats for the removal of ticks from them. He finds the cottonseed-oil floating on water makes the best dip. This method has been extensively used in Queensland, Australia, where cattle are dipped before driving. The efficacy of the bland oils will be more in the preventing of ticks arriving on the cattle than in the destruction of those already on. In an experiment by the author, however, lard, when thoroughly rubbed upon young ticks, has not only stopped their growth, but caused them after some days to drop, without maturing.

The removal of ticks may be accomplished without either picking or greasing. This method has been described by Dr. Smith, and is but taking advantage of the life-history of the tick. If left alone, ticks mature and drop off. If no others are allowed to get upon them, they, of course, keep free. Dr. Smith recommended the placing of the tick-bearing cattle in an uninfected inclosure for fifteen days, then into a second for fifteen more. They should be examined closely, and, if free, put into the final pasturage. For the warm season the time is ample. A longer time may be necessary in colder weather, when the ticks do not mature so rapidly. On farms cultivated for varied crops this is the most satisfactory method, for there are always uninfected fields upon them. When every pasture-land is supposed to be infected, a portion may be abandoned or cultivated for a year, the cattle then cleaned of ticks, preferably in winter-time, and pastured upon them, leaving the remaining portion to become disinfected. It is possible that fields may become disinfected of seed-ticks in five months; but there is no positive evidence, so it is better to take a longer time. If hand-picking is resorted to in addition to turning on cultivated fields, the process is much shortened. If the fields are burned over about a month after the cattle are taken off, thus giving time for the young ticks to be hatched and to crawl upon the grasses, the cattle may be turned back upon them as soon as practicable. When this method is followed care must be taken to see that wet swails and resting-places of the cattle are also burned over. The burning will in any event diminish the number of ticks Barnyards and road-sides should be scraped or the latter burned over.

The ploughing of cultivated fields turns the ticks under and destroys them. The cattle can be pastured as soon thereafter as convenient or as soon as there is any fodder. In many counties of Virginia and North Carolina the practice of keeping cattle enclosed and changing them from field to field as the season affords food has entirely exterminated the ticks. Housing cattle nights and confining them during their noonday-rest in disinfected places will also keep off ticks.

Whatever the method adopted, thoroughness in its application until the task is accomplished is demanded. On most farms a combination of methods will be found most convenient. On few, excepting possibly the cattle-ranches, will the dipping-vats be found necessary. A little forethought and study in adapting the method to the surroundings will enable the cattle-owner to destroy the ticks with comparatively little expense. When it is remembered that ticks are scarce in spring and abundant later on, their destruction should be begun with the first seen and not given up until there are no more.

When the infected lands are completely cleared there can be no reason for quarantine. Though there may be infected lands which will produce the disease, a condition which has until now not been proved to exist, the disease cannot be carried to other cattle when the infected cattle are transported, except through inoculating agencies. The disease will then be confined to those localities which may be accurately mapped, and finally some means of extermination found. The facts now show that the greater part, if not all, of Southern lands are intermittently becoming infected and disinfected, and that infection follows ticky cattle.

Extermination of the pest is the only radical, rational method of treatment of the tick-plague. All other plans are but temporizing makeshifts, and in the end most expensive. Quarantine is at present but a necessary evil which will eventually become useless.

Vaccination, excepting of calves by natural methods for pasturing on infected lands, is comparatively useless, since the same results are permanently gained by destroying the ticks.

Future prophylactic work in the tick-plague lies in cleansing farms from ticks and contracting the line about the infected area until the country is cleansed.

ABORTION IN DOMESTICATED ANIMALS.

BY CHARLES F. DAWSON,
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THERE are perhaps few veterinarians or stock-raisers who have not at some time encountered instances of this trouble in the domesticated animals. Authors on veterinary matters generally recognize two kinds of abortion.[1] The first, and probably the least in importance so far as this paper is concerned, is known professionally as sporadic abortion. We believe that a large number of the cases coming under this head are, as it is claimed for them, due to accidental causes or external influences. Some of them are very likely due to the ingestion of certain substances which have a specific influence upon the genital organs, acting directly upon them through the parturition centre. Other ingesta may, by causing violent purgation from irritation of the intestinal walls, have their influence upon the uterine muscular tissue by induced uterine hyperæmia.

In support of the views held by many practitioners that cattle, horses, and sheep do at times eat along with their fodder certain plants which have abortifacient properties, I quote from a note by the late Professor Joseph Leidy,[2] in which he says: "Some years ago a physician living in the lower part of our city submitted to me for determination a root-fragment which he said was used in the circle of his practice in a rural district as a domestic emmenagogue. Not recognizing the root, he afterward brought to me a portion of the stem and leaves of a plant which proved to belong to the common ironweed (*Vernonia noveboracensis*), growing abundantly in the meadows. It has occurred to me that if this plant has the quality attributed to it, it may, when cut among hay and fed to cattle, be one of the causes of abortion among cows."

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[1] In this paper, and according to the general custom among veterinarians, the term abortion is used as indicating a premature expulsion of the fœtus regardless of the question of its viability.

[2] Journal of Comparative Medicine and Surgery, vol. viii. 1887.

Because it is well known that ergot, by reason of its action upon the vasomotor nervous system, can cause the uterus to contract upon its contents with sufficient force to expel them, and because of the frequent occurrence of this fungus in the fodder of animals, it has been reported as being a factor in causing a large number of cases of sporadic abortion. There are, however, records of numerous experiments where ergot has been fed in large quantities to pregnant cattle without causing them to abort. If we accept that ergot has the same systemic effects in all animals we should conclude that either the doses given were not sufficiently large and frequent or that the ergot used did not contain the ecbolic principle. We know that ergot does exert its physiological action upon cattle, because of a notable outbreak of ergotism which occurred several years ago in Kansas.[1] Great excitement prevailed among stockmen at the time, they fearing that they had to do with an outbreak of foot-and-mouth disease. An investigation by the department revealed the fact that the hay upon which the animals had been feeding contained large quantities of ergotized rye. The characteristic effects of the drug were present ;. the extremities became gangrenous and sloughed away.

The literature of the subject of abortion teems with contradictory statements both from members of the veterinary profession and from laymen. The agricultural societies of Great Britain have appointed numerous committees to investigate the disease, with the result that it seems to-day that very little more is known about it than formerly.

The alleged causes of sporadic abortion are very numerous, indeed, and it would seem that the number of conditions which might cause an animal to abort is limited entirely by environment and existing circumstances. We can very well understand that if a pregnant animal were jammed in a stall or doorway or were to receive a violent blow upon the abdomen, or were subject to external violence of any kind, that the placental attachments could thereby be ruptured. This happening the fœtus would die, become a foreign body, and be expelled.

Many arguments, pro and con, have been made regarding another cause of sporadic abortion—that of sympathy. We can conceive that an animal may, through the organs of special sense, receive a mental shock sufficiently severe to be reflected to parts of the sympathetic nervous system. While we have no data to prove that sympathy ever causes an animal to abort, and while we do not believe that the sympathetic nervous system is as highly developed in the lower animals as it is in man, we have the familiar old sight that a cow roughly treated will not "give down" her milk, and that the presence of the calf will cause the milk to flow.

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[1] First Annual Report, Bureau of Animal Industry, 1884.

It is an unquestioned fact that in human practice the uterus of the puerperal patient may be made to contract by the simple application of the newborn to the mother's breast. In fact, this knowledge is made use of in some instances where the uterus seems slow to contract. Can we have any better evidence of the close bond of sympathy existing between the various parts of the nervous system? If the slight stimulus exerted by the application of the young to the mammæ, or the mere presence of the young, so affects the nervous organization of the mother as to cause a "flow" of milk, or a contraction of the uterus, why might we not conclude that in severe nervous shocks, such as sudden fright, being chased by dogs, the sight and odor of blood, etc., we have stimuli sufficiently severe to cause the uterus to contract with sufficient force to expel its contents?

We must remember that in all the domesticated animals the sense of smell is much more highly developed than in ourselves, and that because an odor does not to us seem to be of sufficient intensity to warrant us in believing that it could exert any great influence upon the sympathetic nervous system, is no reason at all for believing that the same argument would be true in the case of the lower animals.

As before stated, we say that all cases of abortion which result from kicks, blows, disgusting sights, odors, etc., are due to external causes. Now we may have sporadic abortion occur from what we are pleased to term internal or systemic causes. Under this head we would put those cases which could occur from the ingestion of food containing plants which have ecbolic properties. We may also have as a cause of sporadic abortion certain conditions of the animal's system. Any severe disease may so affect the pregnant animal as to cause it to abort. A severe lung-disease in which the respiratory area is greatly lessened, causing an imperfect oxygenation of the blood, would make itself felt at the point of greatest tissue-change, the uterus in this case, and would be very apt to start up a revolution in that organ.

A badly ventilated stable containing many animals could, by virtue of the gradual accumulation of the carbon dioxide and other poisonous exhalations from the animal body, be the cause of abortion. This, however, we believe to be a very infrequent cause, as most stables have sufficient ventilation to prevent the accumulation of such gases in poisonous qualities.

Cases of abortion could occur from a displacement of the uterus, and by any cause which would operate to prevent the natural enlargement of that organ, such as fibrous adhesions to other structures.

On account of the immense volume of the stomachs in the cow, and of the cæcum and colon in the mare, it is easily understood how, in cases of acute indigestion, when those viscera are greatly distended with gas from the fermentation of their food-contents, they can by encroaching upon the gravid uterus exert an influence upon that organ and cause it to expel its contents.

Theoretically, any disease or condition which impoverishes the blood also impoverishes the uterine structures, and we probably have some cases of abortion due to this state of the blood, or anæmia. Therefore, Texas cattle-fever, which has been shown by Dr. Theobald Smith to be due to a parasite which lives at the expense of the blood, should cause a pregnant cow to abort, provided she had the disease in a severe form.

Since writing the above regarding the influence of anæmia brought about in the blood of cattle suffering with Texas cattle-fever, I have received the following evidence that the theory is a correct one. Col. R. J. Redding says in a letter addressed to Dr. D. E. Salmon: "Mr. Wing desires me to state a circumstance in regard to the outbreak of Southern cattle-fever in Greene County that he overlooked in writing to you the other day, viz., of the cows that were attacked that were pregnant, all, excepting one, aborted, and of several that were nearly due to calve or a few days overdue the calf in every case was dead."

On the contrary, abortion may be caused by an opposite condition—that of plethora, where we have an abnormal accumulation of food-principles in the blood, and where, from the decreased activity of the secreting and excreting organs, the abnormal accumulations are not removed.

Sudden changes of temperature can cause abortion by a central determination of the peripheral blood. In order to understand this condition, better known as a "congestive chill," we must recognize that as soon as an animal becomes pregnant the uterus becomes the seat of a most extraordinary tissue-metamorphosis; that in order for these great changes to take place the uterine blood-supply must be greatly increased. Those who have studied the uterine bloodvessels of a non-pregnant animal will remember that the uterine arteries are not relatively large. In thè pregnant state, however, the reverse will be found to be true. The former small, tortuous arteries are now much enlarged, carrying very much more blood than they did formerly. So when from a sudden blanching of the skin and superficial structures the blood is driven to the internal organs the uterus gets a large share, and becomes congested, the delicate lining of the walls of the arteries in the placental structures becomes injured, and the maternal connection of the fœtus is severed.

(To be continued.)

BACTERIOLOGY IN ITS RELATION TO VETERINARY SCIENCE.[1]

By M. P. Ravenal, M.D.

(Concluded from page 14.)

It would be most tempting to speculate on the possible achievements of the future and to dwell longer on what has been already accomplished; but the object of this address, as promised, is to give a short and practical talk directed mainly to pointing out to you how the general practitioner may best assist the specialist in bacteriology in his work for our future benefit. It is known to you all, I believe, that through the efforts of our able State Veterinarian a bacteriological laboratory has been established at the University of Pennsylvania by the State Live-stock Sanitary Board, and it is our wish and object to make the work of this laboratory of benefit to the community and State in general as well as to advance our knowledge of the cause and prevention of disease. The specialist in his laboratory has but little opportunity of seeing cases other than experimental ones or of knowing even what is going on among practitioners, and it is here that you can aid us greatly, and in return we will do all we can to aid you. While it requires much time and attention to do bacteriological work, and for that reason the science will probably always remain in the hands of specialists to a great extent, every practitioner can readily acquire enough of the technique and the principles on which it is founded to enable him to secure cultures and specimens which can then be worked up by a specialist in the laboratory. I lay stress on this point because much valuable material goes to waste through improper methods of collection, and the bacteriologist is likely to be blamed for what is not his fault. A few words on this point may not be amiss. The apparatus required for making cultures is not elaborate. A stout platinum needle mounted in aluminum, an alcohol lamp, and a few culture-tubes are all that will ordinarily be required. Cases are now put up containing these articles, and may be obtained from the makers of surgical instruments. In addition to this a few sterilized pipettes made from glass-tubing are often useful. Beyond these things nothing is required except the instruments every practitioner always has—a scalpel or razor. If the culture or specimen is to be taken post mortem, let it be as soon after the death of the animal as possible. The internal organs especially soon become invaded by intestinal organisms after death, and our work may thus be hindered or even rendered negative entirely. The surface of the organ from which the culture is to be made must be seared with a hot piece of metal and the needle plunged through the sterile area thus formed. Blocks of tissue for the cutting of sections must also be taken as soon after death as possible and preserved in 95 per cent. alcohol, or, if it can be obtained, better still in absolute alcohol, when it is to be examined for bacteria. Blood, pus, urine, etc., are best collected by means of the pipettes as a rule, or where larger quantites are wished a sterile canula may be used, the fluid being drawn into sterile, glass-stoppered vials. The cardinal principle always is to use sterile apparatus and implements, this end being best attained by the use of heat, either dry or moist. As a rule, large quantities of material are not required. The sterilization of implements and receivers is readily done in your own homes by boiling in water for fifteen to twenty minutes or exposure in the oven of a stove for one hour or more. In many houses the Arnold steam sterilizer may now be found, making the process still more easy. Do not think that the elaborate apparatus often seen in laboratories is necessary to accomplish your ends. The principles once mastered, efficient apparatus may often be improvised from the ordinary household utensils. (One of our great American surgeons was in the habit of saying that he treated fractures with "splints and common sense".) Success in bacteriological work depends largely on this latter element, and I may add one more—attention to details, remembering that a chain is no stronger than its weakest link.

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[1] Read before the Keystone Veterinary Medical Association, Philadelphia, Pa., December 8, 1896.

Such is an outline of the rules to be observed for all cases, though they may be more or less modified according to the disease we are investigating. For instance, material from the intestines or the discharges from the nostrils in a disease like glanders will always be contaminated, and no precautions as to the sterility of our containing-vessels will prevent it; but even here we should still be strict, for otherwise we could not be sure of the source of the organisms found. Always, whatever the specimen may be, it must be sent to the laboratory as rapidly as possible after collection, and unless it is preserved in alcohol should be kept on ice as a rule. I have had the brain of an animal suspected of rabies sent to me in such an advanced state of decomposition that no positive results were possible, the inoculated animals dying as the result of infection from the putrid mass rather than from any hydrophobic virus it may have contained.

The study of the rarer diseases is very attractive, and in some ways seems to offer the greatest rewards for our search, but such is not the case. They are not to be neglected, but it is the widespread diseases that will yield the best results in most cases. Tuberculosis is unquestionably the most important, general, and destructive disease with which we have to deal, whether in man or in the domestic animals. Too much study cannot be given to it, either in the laboratory or in its clinical manifestations. In spite of the work which has been done on it, the question of transmissibility from animals to man is still somewhat unsettled, there being those who hold the opinion that there are two distinct diseases and probably non-communicable from one species to the other, while by others the cow is regarded as being the most potent factor in the causation of human tuberculosis; and I have heard the opinion expressed that human tuberculosis would disappear if the use of the cow and its products could be stopped. The truth lies probably in the middle ground. As to the transmission by milk there can be but little doubt, I think; but it seems necessary that there must be tubercular involvement of the lymphatics and udders. Tuberculosis may remain localized for years and do apparently but little harm, and then all at once become generalized. Hence an animal with even the smallest manifestation of the disease is a menace to the whole herd and to those using the products of that herd.

I cannot too warmly advocate the stand taken by the authorities in this State as to the slaughter of tuberculous animals, and I regard it as the duty of all who are interested in public hygiene as applied in its broadest sense to support those who have the carrying out of these laws in their hands. It must be a work of education by those of us who have had the advantages of study and observation. While I do not anticipate the disappearance of the disease entirely by the enforcement of these laws, I do hope for a vast improvement in the health of our people as well as of our herds.

The diagnosis of tuberculosis is not always easy from clinical symptoms, nor from post-mortem examinations; but fortunately in tuberculin or Koch's lymph, as it was called, we have an almost infallible means of detecting the disease. The bacteriologist with his microscope may not be able to demonstrate the presence of the bacillus in the cheesy masses so characteristic of the tubercular process, yet the inoculation of a susceptible animal with this material will cause the disease. This fact has given rise to doubt in the minds of some who were inclined to doubt the causative agency of the tubercle bacillus, but is now explained by the formation of spores, by the tubercle bacillus in the tissues, which need only to be transplanted to suitable soil to vegetate and multiply. Cultures of the bacillus are reported to have been obtained from the dust of rooms and stables in which it could not be found by the microscope. The difficulty of cultivating the tubercle bacillus makes culture-experiments of somewhat doubtful value, and the intraperitoneal inoculation of susceptible animals, such as guinea-pigs, offers very much surer results. Milk or pus, for instance, in which the bacillus cannot be demonstrated by the microscope, will often cause tuberculosis on inoculation.

A volume might easily be written on this subject alone, but I must leave it now with one more suggestion, applicable to all other diseases as well. I refer to the collection of statistics and observations. In this way the practitioner can do an immense amount of good in extending our knowledge, and from his observations laboratory experiments can be mapped out.

There are two other rather common diseases met with by the veterinarian in which an early and certain diagnosis is of great importance—anthrax and glanders. Diagnosis of anthrax is not usually difficult, and the inoculation of a mouse or guinea-pig with a little blood from the suspected animal will make the matter clear. The diagnosis derives its importance from the necessity of stopping an epidemic outbreak, which can be done by the use of vaccines, as well as from a sanitary standpoint in the disposal of the carcass. The anthrax bacillus in the growing stage is not hard to kill, but forms most resistant spores, which retain their vitality for long periods of time. These spores are never formed in the body during life, but may be present in the bloody discharges. After death when the tissues are opened and oxygen admitted spores may form. It is taught in some text-books that at the depth of seven or eight feet the temperature of the earth is so low as to prevent the formation of spores, and that burying the animal at this depth is a safeguard against future infection. Actual thermometric observations on bodies at this depth show that the changes due to decomposition develop heat enough to allow of the formation of spores. Pasteur further showed that these spores might be brought to the surface by earth-worms. This has been denied by Koch and his followers, but the experiments of Pasteur appear to me to be conclusive. We have two rapid and sure ways of diagnosticating glanders—by mallein and by the inoculation of guinea-pigs after the method of Strauss. Mallein is a glycerin extract of the bacillus mallei of glanders bacilli, for the introduction of which we are indebted largely to Dr. Leonard Pearson, who was one of the first to make an experiment with it. Its employment is now as well-recognized a procedure as is the use of tuberculin, to which it is closely allied so far as its manufacture and use are concerned. Strauss's method depends on the selective action of the glanders bacillus for the testicle of the guinea-pig when inoculated into the peritoneal cavity. If the culture be virulent, a suppurative orchitis is set up by the third or fourth day, and the diagnosis is absolute. Rupture of the testicle takes place later, and the animal shows general infection.

Among the less understood, but unfortunately too common diseases, I may mention osteoporosis and meningitis as being of peculiar interest. The general remarks as to collection of material for examination apply in these cases. The diseased tissues and the general circulation seem to offer the best material for study, and cultures should be made from these promptly. So far results have not been satisfactory, but there is no reason to give up the fight. Each year we improve our methods of technique and culture, and there is strong ground for hope that persistent effort will soon be rewarded by the elucidation of the etiology of these diseases.

I have tried, gentlemen, to point out succinctly how we may work together; but let me ask you not to depend too much on the specialist. Many of the methods described are of easy application, and each practitioner can do much for himself, and derive from them in consequence much more good than he would from work done by another and the results given to him.

ACETANILID (OR ANTIFEBRIN).[1]

By F. S. Allen, M.D., D.V.S.,
PHILADELPHIA.

(Concluded from page 12.)

In the winter of 1892 and 1893 I collected a few notes of cases treated by myself with acetanilid. While they are not as full and complete as I wish they were, they will help to illustrate its action, etc.

Case I.—Temperature 107.4°, falls in less than twenty-four hours to 102°, or 5° fall.

Case II.—Temperature 104°, falls in twenty-four hours to 100.6°, or 3.4°.

Case III.—Temperature 107°, falls in six hours to 105.6°, or fall = 1.4°; falls in twenty-four hours to 104° = fall 3° first day; 102.4° = fall 1.6° second day; 100.6° = 1.8° third day.

Case VI.—Temperature 105°, falls in twenty-four hours to 100.4° = fall 4.6° first day.

Case VII.—Temperature 104.2°, falls in twenty-four hours to 100.2° = fall 4° first day.

Case VIII.—Temperature 106.4°, falls in twenty-four hours to 104° = fall 2.4° first day; 101.6° = 2.4° second day; 100° = 1° third day.

Case IX.—Temperature 103°, falls in twenty-four hours to 100° = fall 3° first day.

Case X.—Temperature 105°, falls in twenty-four hours to 103° = fall 2° first day; 100° = fall 3° second day.

Case XI.—Temperature 105°, falls in five hours to 104.4° = fall $\frac{3}{5}$°; falls in twenty-four hours to 102.6° = fall 2.4° first day; became normal on sixth day.

Case V.—Temperature 104°, rose to 105° in five hours; rise 1°. It then began to fall to 104.6° = fall $\frac{2}{5}$° first day. It fell 2.8° on the fourth day and 1.8° on the fifth day. Normal on sixth day.

Case XII.—Temperature 106.2° at night. Temperature in morning 105.4°, fall of $\frac{4}{5}$° in twelve hours. Second day 104.2°, fall of 1.2°. Third day 104.8°, rise of $\frac{3}{5}$°. Fourth day 103.2°, fall of 1.6°. It then began to fall gradually for six days. Acetanilid was renewed when it began to rise, continuing for two days, when it again fell gradually for two days and again rose till it reached 103.8°, then fell to nearly the normal, and recovery took place.

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[1] Read before the semiannual meeting of the Pennsylvania State Veterinary Medical Association, October, 1896.

CASE XIII.—Typhoid. Bowels affected. Temperature 106.8° at night, in twelve hours reduced to 102°, fall of 4.8°. On the second day the temperature reduced to 100.8°, fall of 1.2°. The temperature continued at about 101° for a number of days, acetanilid being removed at the end of twenty-four hours. Laxatives, stimulants, and alteratives were given in its place. Recovery took place.

CASE XIV.—Typhoid. Lungs affected. Temperature at noon 106.6°, at 6 P.M. 106°, at 8 P.M. 108°; same day. Acetanilid was given for one day, when it was removed. Ice-water baths were introduced three times a day, from one hour to one hour and a half (and at times only half an hour). Alcohol was given in drink; alteratives, stimulants, and slight laxatives were given. Recovery in twelve days.

CASE XV.—Typhoid. Temperature 107°, falls in twenty-four hours to 106° = 1° fall first day; 104.6° = 1.4° second day; 104.4° = $\frac{1}{5}$° third day; 105° = $\frac{3}{5}$° rise fourth day; 106° = 1° rise fifth day; 105° = 1° fall sixth day; 103° = 2° fall seventh day; 101° = 2° fall eighth day; 103° = 3° rise ninth day. Died.

CASE XVI.—Temperature 105°, no fall first day; 105°, no fall second day; 104°, fall third day of 1°; 103.4°, fall fourth day of $\frac{3}{5}$°; 103°, fall fifth day of $\frac{2}{5}$°; 102°, fall sixth day of 1°; 100.6°, fall seventh day of 1.4°. Case taken out of my hands. My medicine continued to the last day, stimulants, etc. The case died some three or four days after leaving my hands. My successor having stopped all medicine for nearly one day, I informed the owner that the animal would die as a result, etc. When I left the owner my successor called and informed him the animal would recover. While reporting the case the animal died. The doctor had walked the animal into the yard and exercised him. I attributed the cause to over-exertion, etc.

Most of the cases were those of influenza—many of them green horses. Acetanilid was used in drachm doses and in combination with the fl. ext. belladonna, tr. nux. vom., tr. cinchona and alcohol. This mixture was given every three or four hours. In some cases I continued this mixture for six days, where fever so indicated, and I felt it was doing no harm. At other times it was used only one day and followed with nitrate of potassium in drinking-water. In other cases ammonium chloride, pulv. nux vom., quinin. sulph., etc., were given in bolus. In some cases I found the pulse became soft in character; there were at times great depression and weakness, the number of pulse-beats falling below the normal, as was the case in Case I. In other cases the pulse became intermittent. This I noticed mostly in typhoid diseases. In what is called pleuro-pneumonia contagiosa, etc., I have used acetanilid in drachm doses every three or four hours for twelve days, and in a few cases even longer, without any bad results.

This drug should be used with care, however, to prevent any accident. I can recall two cases—one in my practice and one in a friend's practice. My friend had just left the stable after giving a very favorable prognosis that the animal would recover, and was doing nicely, when the animal dropped dead. In my case the horse was small; the drug had been given, as was my custom, night and day every three or four hours. The animal was doing well when last seen the day before, but the treatment was to continue till the next day. On calling the next morning, to my surprise I learned the animal had died during the night, and had been removed. I felt that the drug should have been discontinued the night before, and it is possible by so doing the animal would have lived. I find that there is a tendency to over-stimulation of the kidneys at times and later to a suppression of the urine; these cases, as a rule, terminate fatally.

I have made it a rule of late to use acetanilid for twelve to twenty-four hours in all doubtful cases having a high fever, and thus learn if indicated or not.

I believe in full doses, and think it should be given once in four hours if we wish to obtain the best results. Eisenhart claims that small, repeated doses are useless. He says it should be given in large, full doses and at one time, and if no fall in temperature occurs resort to some other treatment.

ONE drachm of creolin added to a colic drench specially designed to relieve the pain incidental to gastric disturbance where there is a great accumulation of gas in the anterior portion of the gastro-intestinal tract oftentimes gives the most prompt relief in counteracting the fermentation.

COMMUNICABLE ANIMAL DISEASES.[1]

By W. Herbert Lowe, D.V.S.,
PATERSON, N. J.,
FORMERLY UNITED STATES VETERINARY INSPECTOR OF THE PORT OF NEW YORK.

(Concluded from page 21.)

The caring for the contagious animal diseases in this State has during past years been intrusted to the State Board of Health, and it is hardly necessary for me to allude to the effectiveness of the untiring efforts of our deceased fellow-laborer, the lamented Dr. Ezra M. Hunt. The good work inaugurated by Dr. Hunt is still being carried on and extended in many ways by the present able Secretary of the State Board of Health and his co-laborers. This board was successful last year in suppressing anthrax in Cumberland County and elsewhere in this State, and I am pleased to say that there has been no return of the disease during the present year. Forty-five cases of glanders were reported, of which number five cases, upon examination, showed no evidences of the disease. All the other cases were destroyed and action taken to prevent extension of the disease. The mallein-test has been employed as a diagnostic agent in suspicious cases with satisfactory results. In speaking of glanders I am reminded of a farcy case presenting some dangerous and alarming features that came under my observation some two or three months ago. A poor man bought a horse with sores on its legs, being told by the seller that the sores were only fly-bites. His twelve-year-old daughter bathed the sores for a week or more, when I was called. I explained to the parents the nature of the disease in the horse and the danger of inoculation to the girl, and advised treatment. Fortunately the girl has shown no symptoms of the disease, and as two or three months have elapsed it is probable that she was not inoculated with the virus. The limits of my paper are such that I must pass on rapidly. But before doing so let me state that the investigation and control of one single infectious disease have assumed such importance in our State from both a sanitary and from a financial standpoint that the Legislature two years ago, if I remember rightly, took the control of it out of the hands of the State Board of Health and passed a law creating a special commission on tuberculosis in animals. This commission unfortunately is limited in power and funds. But nothing has prevented them from prosecuting the duties imposed upon them to the full extent of the means at their command. Under the statute they can only act when requested by the State Dairy Commissioner, the State Board of Health, or at the request of the owner. They have no power under the law of their own volition to examine any herd, no matter what its condition may be, without the request or consent of one of the forementioned.

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[1] Read before the twenty-second annual meeting of the New Jersey State Sanitary Association at Lakewood, N. J., December 12, 1896.

When the commission organized and commenced its work some individuals were strongly opposed to it. These people mostly did not understand the insidious, chronic nature of tuberculosis, and that it was transmissible to the human family. Others, from selfish motives, were afraid that it would hurt their dairy business, and so on.

The commission, however, soon proved itself equal to the exigencies of the work. Its experienced and able Secretary, the Hon. Franklin Dye, inaugurated what was essentially "a campaign of education". His far-seeing intelligence told him that the only real impediment to the ultimate work of the commission was ignorance on the part of dairymen, cattlemen, and others of the essential nature and danger, not only to the animals, but to the health and wealth of the people themselves. When we consider that tuberculosis kills more people than any other disease among mankind, and that the tubercle bacillus of tuberculosis is transmissible from the cow, the importance of the question that confronts us becomes more evident from a sanitary standpoint.

The commission is a most conservative and safe body, moving slowly but surely, doing effective work. When called upon it inspects an infected herd, making a careful physical examination of each individual animal, and testing with tuberculin any cases that cannot be diagnosticated without its aid. Diseased animals are condemned, appraised, killed, and autopsies made, and owners are paid three-fourths of the appraised value. Premises are disinfected. The matters of proper ventilation, sunlight, and good sanitary conditions in general are encouraged as far as possible.

No public work where so many interests are involved was ever conducted without criticism and opposition to some extent; but I must say that I am surprised at the support given the New Jersey State Tuberculosis Commission by producers and consumers. Both see the importance and value of healthful food-products, and I have yet to meet the man who has had dealings with the commission who was not well satisfied and was not ready to support the furtherance of the work.

The "campaign of education" has been already productive of much good. The preliminary work so far has been judicious, careful, and thorough. It does not speak well for the people that this commission should be hampered in the important trust that has been committed to its care. I therefore bespeak for the commission that the Legislature be asked to enact necessary amendatory legislation and appropriate sufficient funds to prosecute successfully the work in hand.

Before concluding these fragmentary remarks I would invite your attention to what I personally believe to be a very important phase of the subject from an economic standpoint, which I referred to quite fully in an address recently delivered before the County Veterinary Medical Association of New York, at the New York Academy of Medicine. I refer to the necessity of breeding animals of greater constitution, stamina, and vigor. The fact that tuberculosis is caused by the tubercle bacillus, and is therefore not hereditary, does not lessen the importance of breeding dairy cattle having substance and stamina sufficient to resist infection and development of the micro-organism.

We all know that in time of war a city that is not properly fortified is easily taken by the enemy. So the animal body, if not fortified with a strong constitution and stamina, will be readily invaded by the micro-organisms of infections. The proper pabulum or soil for the development of microbes is only second in importance to the microbe itself. All persons exposed to infection of tuberculosis, smallpox, or scarlet fever do not take the disease because all are not alike susceptible. All men who eat the flesh or drink the milk of tuberculous cows do not contract tuberculosis. Whatever in any degree weakens or impairs the system of men or animals renders them liable to the invasion of disease. The animal that inherits a strong, untainted constitution and good health from its progenitors possesses a disease-resisting power that often means an immunity. If this principle of heredity was kept in mind in breeding dairy cattle, there would not be so much tuberculosis. Environment, sanitary conditions, climate, and food have also important influences upon the causation and development of tuberculosis, which department of the subject I hope to be able to treat more fully upon some future occasion. There is little benefit to be derived from destroying affected animals if you keep on breeding weak, delicate, and deteriorated cattle, which, when developed and forced to their full milking capacity, and stabled in a crowded, ill-ventilated, damp, dark, filthy, and unsanitary condition, will not be able to resist the dreaded micro-organism.

This breeding problem promises great and far-reaching results, if intelligently carried out by our farmers and breeders. In the human family no such theory could be carried out, but in the animal kingdom there is nothing to prevent. I trust that the matter will receive the consideration and attention that it deserves.

ABSTRACTS FROM FOREIGN JOURNALS.

UNDER THE DIRECTION OF

J. Preston Hoskins,

PRINCETON, N. J.

The Propagation of Cattle Tuberculosis by Fecal Matter. Cadéac and Bonmay have already demonstrated experimentally that the bacillus of tuberculosis retains all its virulence after traversing the digestive tract of the dog. The dog at the same time that it becomes infected by ingestion can also become a vehicle for transmission of the virus of this disease. Messrs. Cadéac and Bonmay have made like experiments upon cattle, and affirm that animals of the group which have been infected with tuberculous products expel with their excrement bacilli whose virulency they have proved by inoculating rodents. The fecal matter of tuberculous cattle thus presents itself as one of the agents of infection, whether the animal has ulcerous lesions in the digestive tube or swallows the products of suppuration from the pulmonary lesions.—*Annales de Méd. Vét.*, March, 1896.

Contribution to the Study of the Horse-chestnut. The hog, which eats acorns, roots, and divers fruits so greedily, absolutely refuses to touch the horse-chestnut. The recommendation not to give him this fruit in large quantities is therefore wholly useless. The duck likewise refuses them under whatever form they are presented. Mr. Comevin found that fresh, decorticated horse-chestnut in doses of 40 to 50 grains per day poisons the duck. Although not exempt from the effects of the poison, the chicken offers a greater resistance than the duck, and the pheasant a still greater one than the hen. Neither desiccation nor torrefaction destroys the toxicity of the horse-chestnut. Maceration and especially boiling in a large quantity of water remove the poison. A mixture of finely pulverized horse-chestnut and beets or other fleshy roots, when ground very fine, is readily eaten by sheep, which can consume from one to two kilogrammes of fresh horse-chestnut daily without injury to their health. This immunity is shared by all the ruminants, domestic and wild. The poisonous principle of the horse-chestnut cannot be tannin nor the oil which it contains, but a sort of soapy substance identified by M. Fréry with saponin. This poison is very active in the duck, which it kills rapidly. It produces effects intermediary between those of the saponin of mildew and the extracts of the autumnal meadow saffron.—*Annales de Méd. Vét.*, March, 1896.

CHLOROBARIUM. After some fifty cases of colic had been treated in Dieckerhoff's clinic in Berlin with chlorobarium and the reports were published, and after the unusual effect of this drug was reported from many quarters, E. Zechokke was led to make some experiments with the same remedy in the Zurich clinic. According to Dieckerhoff, an effect is obtained in fifteen to forty-five minutes, when the medicine is administered per os, the average dose for horses being ten grains, either in pills or in solution. On the other hand, a much more prompt result is obtained with subcutaneous or intravenous injections. A physiological test must give us the indications for its use in the case of sick animals; therefore, we made the first tests on healthy horses, and for that purpose we choose seven animals in ordinary condition. Intravenous injections were made at first. This operation is easy and without danger. Cut off the hair around the jugular vein, disinfect the spot, cause the vein to swell up a little by compression as when bleeding, and place in a syringe eight or ten grains diagonally up or downward. Chlorobarium, which comes in pure white crystals with a salty taste, dissolves easily in water and is usually administered in a 10 per cent. solution. Like all barium salts, chlorobarium is a powerful poison to man. The horses were numbered and their normal condition noted. They were of average size, somewhat old, but all robust. The injections were made in all the animals at almost the same time, and each animal was watched and guarded by a student for one and one-half hours, until every symptom had disappeared. From the 10 per cent. solution three horses were injected with 10 cubic centimetres, two with 7 cm., one with 5 cm., and one with 15 cm. The first reaction followed in all cases in from three to thirty seconds, in the form of twitchings at the mouth, which continued from fifteen to thirty minutes. The horses did not eject any saliva, however, but twisted and shook their heads in a peculiar manner, giving the impression that the effects were unpleasant to them. The effect on the stomach was visible in thirty to one hundred and fifty seconds. The animals raised their tails and emitted gas. After one and a half to three and a half minutes emissions of solid excrement followed without exertion. Signs of restlessness now presented. The horses moved about uneasily, drew themselves together, and looked around toward their hinder parts. The horse with the 1.5-grain dose began to groan and move violently. In the horses with smaller doses these symptoms were present only to a slight degree. One even began to look around for food after four minutes. Soon the evacuations began to increase, as did the emission of gas. Within the first hour the animals evacuated respectively 5, 7, 12, 13, 14, 14, 26 times. At first the dung was hard; later it became watery. One animal moved and groaned continually; a second lay down; in none was there any sweating or drivelling. One animal urinated with considerable effort. While no increase of temperature could be noted, the pulse increased in most cases four to eight beats—in one case thirty-six beats, although this animal kept relatively quiet. Dieckerhoff's obsevation that chlorobarium affects the heart was confirmed by this. However, this symptom was only transient, as the reaction lasted in some animals only three-quarters of an hour; in others one and one-half hours, after which they all appeared perfectly well. I am of the impression that chlorobarium increases the peristalsis of the stomach more certainly and promptly than any other drug without increasing the secretion of the glands. Since it is not always possible in cases of colic to make an intravenous injection, eight days later subcutaneous injections were made upon six horses, as follows: in two, 5 grains; in two, 10 grains; in one, 15 grains; and in one 20 grains of the 10 per cent. solution. The injections were made behind the shoulder. In from one-half to one minute on an average nervous twitching of the hip occurred, but did not last so long as in the former cases. Very soon, however, all the animals showed marked restlessness and some of them decided symptoms of colic. They scraped and stamped, lay down repeatedly, looked around, and shook their heads. One rolled on the ground, another one was covered with sweat. The evacuations were not notably frequent; they numbered during the period of observation respectively 1, 2, 3, 3, 6, 6 times. The pulse increased from 46 to 56. Respiration and temperature remained normal. Whether the colicky symptoms are really to be attributed to the pain in the stomach alone—the peristalsis being more active than normally—cannot be asserted with certainty. The animals invariably scraped with the limb in which the injection had been made, and tried to gnaw or rub the spot. Although there was no swelling, heat, or pain at these points, yet the injection seems to cause a local excitation. The restlessness lasted one and one-half hours, and in two hours all the horses had regained their normal condition. No general or local disturbance remained at the point of injection. The subcutaneous injections, however, were not satisfactory in their results. Although the evacuations took place, the general symptoms of restlessness, the pains in the stomach, and the local excitation at the point of injection cause such a complexity of symptoms that one is constrained to say that colic is caused instead of being cured. We would, therefore, in agreement with Dieckerhoff, recommend only the intravenous injection. It is not more difficult to perform than the subcutaneous injection, works promptly without any of the disturbing minor symptoms, and does not involve danger if carried out carefully and cleanly.—*Schweizer Archiv für Tierheilkunde*, January and February, 1896.

LENGTH OF PACE IN HORSES.—Small horses, just as small men, have often a longer pace than large horses. It depends on the joint-formation and the length of shank in the front-leg, but especially on the degree in which the shoulder-joint can be opened. Slanting and long shoulders with long fore-arms should produce a greater length of pace. According to Polunski and Shindella, the lasting power of the hind-legs contributes to this also. In instantaneous photographs it is easily seen that the front-leg in action is thrown out the further at the instant the leg supporting the weight has reached the highest degree of tension (or stiffness). Therefore, the movement of the fore-leg must set the standard for the length of pace in a given animal. It does not depend upon how high the fore-leg is raised, nor upon how far forward it may be moved, but merely upon how long the other leg can support the weight of the body. Since now the perpendicular distance from the point of the shoulder of the leg upon the ground to the point of the hoof of the same leg exercises great influence, and the length of the legs beneath the shoulder-joint is the most important factor in this, so the length of pace is practically dependent upon the length of the legs. The fore-leg can bear the body longer when the centre of gravity of the horse is further toward the rear. Long-bodied horses have, therefore, an advantage over short ones. The extension of the limbs depends upon the angle which the (pipe?) bone makes with the hip- or huckle-bone. Sloping or slant-joints can be extended wider than straight ones. The shoulder-blade is fixed so movably to the body that a perpendicular as well as a sloping shoulder-blade can describe the necessary arc. We are justified in assuming that the mobility of the shoulders is not exercised to its full capacity while the animal is in motion. An arrangement for measuring the movement of the shoulders was made, but the experimenters were not able to establish a longer pace in the case of horses with greater freedom of mobility in the shoulders. As to whether the length of the legs beneath the shoulder-blade influences the length of pace, it was found that horses with a long pace had a comparatively long fore-arm. No difference in the length of shoulder-blade could be detected between horses with a long pace and those with a short one. Besides, the shoulder-angle —*i.e.*, the angle which a line in the direction of the shoulders forms with the horizontal—is usually 60° to 70°, and is never under 58°. In the hind legs the length of the upper and under arms varies without exerting any influence on the length of pace. Here also the thigh-bone forms an angle of from 68° to 70° with the horizontal line. In conclusion the writer strongly disagrees with the article of Chelchowsky in the *Monatschrift für Thierheilkunde.*

VETERINARIAN DUNLAP advises large doses of turpentine with diffusible stimulants in oil in cases of flatulent colic with threatened autointoxication. He strongly condemns morphine and atropine in these cases.—*Veterinary Record.*

THIRTY-EIGHT cases of median neurectomy are reported by Professor Hobday, with thirty-one favorable results, two unfavorable, two still under treatment, and three untraced. The lesions were in nearly all instances located between the knee and the fetlock.—*Veterinary Record.*

SEVERAL large stock-raisers along the Kankakee River have suffered heavy losses during the past two weeks by valuable horses dying with an unknown disease. Up to date over one hundred have died. Many more are affected with the disease, which is unknown as yet to veterinarians. As soon as the disease attacks the animals their blood turns to water, and they soon die.

REPORTS OF CASES.

NECROSIS TOTALIS OF THE SCAPULA.

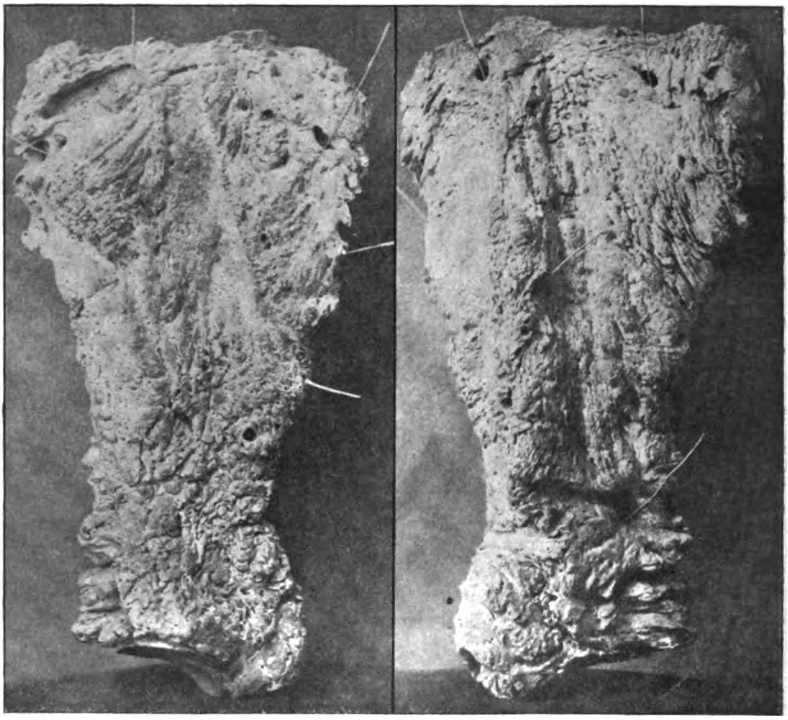
By J. D. Nighbert, V.S.,
PITTSFIELD, ILL.

On August 1, 1889, I was called to see a valuable roadster stallion which, a few days previously, had been kicked on the point of the left shoulder. An examination disclosed a small wound of the integument and tissues at the lower point of the shoulder, near the termination of the spine; lameness excessive; temperature 103°; swelling of entire shoulder, but better marked around the point; a slight bloody discharge from the wound.

On exploration with a probe found the lower point of process fractured as well as the outer plate of the neck of scapula. Removed several thin pieces of bone, ordered hot applications to the entire shoulder, and thorough cleansing of wound three times a day with bichloride solution.

Internal treatment consisted of two-drachm doses of potassium nitrate twice daily in drinking-water and rectal injections of warm water; this treatment was continued for six days. Swelling and temperature kept increasing; discharge from wound fetid.

On seventh day fluctuating swelling just back of wound, which, being freely opened, several ounces of very fetid pus escaped. From the general swelling of the entire shoulder and the character of discharge a diagnosis of total necrosis of scapula was made and an unfavorable prognosis was given; but as the horse was a valuable one owner thought best to continue treatment, as the horse might sufficiently recover to be of some use for breeding purposes. After thoroughly cleansing cavity I inserted drainage-tube and continued washing three times a day with the bichloride solution. This was followed by a subsidence of swelling where abscess was opened; but near the cervical angle a like abscess formed and was opened and treated as the previous one, followed by a slight decrease of swelling, but pus continued to flow freely from all the openings. In the course of four or five days a like swelling appeared in the region of the dorsal angle. Opened and treated as previous one. This was followed by another abscess in the region of the tuberosity of the spine. The cause of these pus-centres will be readily seen by referring to the illustration of the external and internal surfaces of scapula, where are large cloacæ, exposing the sequestrum, which is almost covered by the sequestral capsule.



The horse now began to show some improvement, but great quantities of pus continued to flow from all the openings. Being now able to walk some, owner thought he would take him to the country, two or three miles out, and care for him himself. In the course of ten or twelve days the wounds almost healed, leaving small, fistulous openings which did not permit the pus to discharge freely enough, and there appeared a swelling in the region of the lower third of the ribs just back of the elbow. This swelling gradually extended to sheath, and owner thought that it needed opening, so he plunged a knife in the softest place just back of the elbow, getting a copious flow of pus, but unluckily severing a large branch of the external thoracic artery. I was hurriedly sent for, and seeing that further treatment was useless I advised his destruction, and, securing the scapula, had it cleansed, and herewith present photograph of the two surfaces, showing the remarkable deposit of lime-salts accumulating in the space of twelve weeks.

TREATMENT OF ANASARCA BY THE SUBCUTANEOUS INJECTION OF ANTISTREPTOCOCCUS SERUM (MARMOREK).

By Harold Sorby,
CHICAGO, ILL.

A recent communication from the Pasteur Institute, Paris, announces the important fact that anasarca in horses is due to a variety of the microbe known as streptococcus, and that the most rational as well as the most successful treatment for that condition is the hypodermic injection of the antistreptococcus serum (Marmorek). The communication referred to says, further, that by the intelligent employment of this remedy the microbes are quickly destroyed, resolution established, and all the symptoms materially modified. A few days only are required to bring about a noticeable improvement, such as progressive diminution of the swellings, disappearance of petechiæ, and lowering of the temperature. The last named, however, is not of vital importance, as an elevation of temperature may be due to some concurrent infection. The specific cause being removed, the after-treatment is very much simplified, judicious feeding and general tonics usually fulfilling all requirements.

The serum mentioned has already been extensively used in the human subject in the treatment of erysipelas, puerperal septicæmia, etc., and with universal success. If it shall now prove to be a specific for equine anasarca as well, it must rank as one of the most valuable discoveries in sero-therapy.

OUTWARD LUXATION OF THE FEMUR.

By W. E. A. Wyman, V.S.,
CLEMSON AGRICULTURAL COLLEGE, SOUTH CAROLINA.

A four-year-old mule was brought to the free clinic with this history: Five weeks ago the animal, while playing in the mule-lot, stepped upon a corn-cob, fell, and was unable to rise. With some assistance he was gotten up, but the right hindleg was shorter than the left one. In a day or so decided swelling about the hip set in, which on applying a liniment(!) disappeared in about three weeks. The owner brought the animal to the clinic only to get a liniment to take the soreness out of the leg. Examination revealed the following: Inspection showed the leg abnormally adducted, the toe barely touching the ground, but supporting some weight; excessive atrophy of all the gluteal muscles; a prominence (palpation proving it to be the trochanter major of the femur) was seen postero-superior to the cotyloid cavity. Flexion of the stifle- and hock-joints limited, while abduction of the limb was quite impossible, the latter well marked during the futile attempts of the animal to kick the writer. Rectal examination was negative. The writer's diagnosis was rupture of the ligamentum teres and outward luxation of the femur (luxatio supra cotyloidea). Since the owner did not wish to kill the animal he was advised by one of the students to rub some liniment on the stable-door.

EDITORIAL.

NEW YORK STATE.

ANOTHER effort to amend the law in New York State extending the term of registration to January 1, 1898, has loomed up in the Assembly at Albany. It also adds a new feature, *any branch thereof*, looking to the favor of perhaps so-called veterinary dentists and dehorners, both of whom have suffered the penalty of practising without a proper license. Eternal vigilance is to be the price of maintaining this wise Act, and it calls forth again from every true veterinarian the most emphatic protest. Let these men, who are certainly not in these days sufficiently well equipped as to be called for by any great public need, but who wish to tear down wise and proper safeguards for the people of New York State, enter some one of the several excellent schools in the State and thus enter the profession legitimately and properly prepared to perform the duties thereof. SCOTCH THIS SNAKE LEGISLATION.

Assembly bill No. 231, creating a State Veterinarian, makes said appointee a member of the State Board of Health, thus removing this office from control of the Department of Agriculture. On the whole, the change is judicious, inasmuch as the prevalence of contagious and infectious diseases among animals bears an important relation to public health; there are likely also to be a closer unity of interests and avoidance of the friction prejudicial to the good interests to be served in public sanitary measures. Empire State veterinarians will have much to engross their attention during the present session of their Legislature. One factor of great importance must not be forgotten, and that is the danger of estranging the agriculturists from the veterinary profession, from whom the latter receive so large a measure of support.

Assembly Bill No. 25 should never be allowed to emerge from the Judiciary Committee. It is special legislation of the worst kind, and will establish a bad precedent. Whatever rights or privileges one Charles McCormick may have under the original Act he neglected or deliberately forfeited by failing to take advantage in proper season of the privileges granted him, and therefore any injury he may suffer is of his own production. One bill or enabling Act of this kind will open the floodgates for a perfect avalanche of such concessions. Every veterinarian in the Empire State who prizes the safeguards obtained should act promptly and earnestly in defeating this measure.

IT is refreshing to read the history of such association work which has been accomplished in Virginia, as is recorded in this number of the JOURNAL. Equally well may it be said that no more unattractive field existed than that of the "Old Dominion". The faithful, earnest, and successful work of the members of this Association deserves the highest commendation, and the entire profession owes them a debt of gratitude for their earnest, persistent labors.

SIGNS of the times are not wanting to impress upon our members a realization of the duties of the hour for veterinarians to accept. Association work grows stronger and more forceful as the needs become more pressing, and the recent formation of an active association in Chicago bids well to aid every movement looking to a betterment of our field of work. It is doubly fortunate for a society to find a good secretary, on whose shoulders falls so much of the labor that measures the success of every organization. The "Windy City" Society seems specially favored in this direction, and the JOURNAL gladly extends its congratulations with a full measure of appreciation of the worth of such an officer.

One of Pennsylvania's well-known veterinarians, a member of the United States Veterinary Medical Association, is surely paving the way for a summary invitation before the executive committee to answer charges of unprofessional conduct and violation of the code of ethics.

MARRIAGE.

On November 19th, at the residence of the bride's parents, Macedonia, Bradford County, Pa., by the Rev. Mr. Fairchild, Dr. Clarence J. Marshall, of Philadelphia, to Miss Augusta Stevens.

NECROLOGY.

William Tag, Ph.G., V.M.D., graduate of the Veterinary Department of the University of Pennsylvania, class of '91, died at Philadelphia on January 12, 1897. Dr. Tag had secured in the northern district of Philadelphia a growing clientage which promised much for him in his professional career.

LEGISLATION.

Pennsylvania.—At the present legislative session a bill has been introduced looking to the registration, examination, and licensing of horseshoers. A feature of the Act is the compulsory registration of all master and journeymen shoers. Registration is based upon a license from a board of examiners. All apprentices, journeymen, or master horseshoers for a period of four years will, upon proper affidavit being presented, be exempt from examination and allowed to register. The board of examiners is to consist of one veterinarian, two master horseshoers, and two journeymen shoers; they are to be appointed by the Governor for a period of one, two, three, four, and five years. The registration fee is to be two dollars. The board is to elect its own officers, hold suitable meetings, pay all expenses from fees received, and allow only one officer, the secretary, a salary of five hundred dollars. The board shall maintain for public inspection a master and journeymen horseshoers' register. The Act provides penalties for violation of its provisions; defines apprentices, journeymen, and master shoers, and makes provision for an annual report to the Governor. This bill will be strongly urged by the various State and local organizations, has the support of the national organization, and bids fair to become a law.

Governor Hastings, in his address to the Legislature, has this to say of State work: "The State Veterinarian, under the direction of the Live-Stock Sanitary Board, has been actively engaged in suppressing outbreaks of contagious diseases among farm animals. A large number of diseases of domestic animals has been dealt with, and in some instances serious loss has been prevented by prompt and well-directed measures. More attention has been given to tuberculosis than to any other single disease, because many cattle-owners have applied for assistance in freeing the herds of this scourge. Coöperation between the farmers and this Board has resulted in the eradication of tuberculosis in many districts. Serious hindrance to the eradication of many destructive diseases is found to result in not making prompt report to the Live-Stock Sanitary Board. It is the duty of the State Veterinarian to investigate the cause of every epidemic affecting the lives and health of domestic animals. When we consider that $125,000,000 is invested in live-stock in this Commonwealth, and that the yearly loss resulting from diseases that may be prevented is estimated at $6,000,000, the importance of closer relations between the farmer and the Live-Stock Sanitary Board becomes apparent."

The ordinance prepared for the consideration of Council in the city of Pittsburg, looking to the most salutary provisions for guarding the milk-supply and regulating the sale thereof, has been withdrawn on second reading, on advice of the City Solicitor that part of the same was unconstitutional. The provisions in question have just been declared constitutional by the Supreme Court of Minnesota.

Massachusetts.—Governor Wolcott, in his annual message to the Legislature, treats of the control and eradication of bovine tuberculosis, refers to the better understanding of the subject from a scientific standpoint, and lays particular stress on the danger when the udder is diseased. Sterilization of all milk is suggested. He refers to those who consider the danger slight when the disease is only in the incipient stage. At present the tuberculin-test is restricted to animals brought in from outside the Commonwealth and at quarantine stations, and may be used after consent in writing obtained of owners of animals within the State and upon animals condemned as tuberculous after physical examination. These restrictions expire by limitation June 1, 1897. He thinks the increased knowledge on the subject and the demands of milk- and meat-consumers will largely contribute to a solution of the problem. The tuberculin-test has his hearty indorsement. He offers two suggestions for consideration: First, Is it right or wise that, as now, the State should pay full value for animals that have reached the most advanced stage of general tuberculosis and udder tuberculosis? Such animals should be brought out by means of a thorough periodic inspection, and slaughtered as being not only worthless but a source of danger to the rest of the herd as well as to the community. At present the owner has no motive to check the disease in its earlier stages. If compensation were graded according to the condition of the animal as revealed by the autopsy, the owner would have a direct interest in purging his herd of infected animals before they become worthless. Secondly, he thinks "the commissioners should in any event have sufficient means at their disposal to enable them to test with tuberculin all cattle the owners of which request such inspection."

Indiana.—At the present session of the State Legislature veterinarians will press for consideration a statute to regulate practice among the "Hoosier" veterinarians. Veterinarian Bitting is an active worker in the movement.

New York.—*Assembly Bill No.* 231.—An Act in relation to the appointment of a State Veterinarian, and defining his duties. The people of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. The Governor shall, with the advice and consent of the Senate, within ten days of the passage of this Act, appoint a State Veterinarian, who shall hold office for the term of three years; he shall be a regularly graduated veterinary surgeon of not less than ten years' continuous practice in this State, and shall be skilled in veterinary science; he shall be a member of the State Board of Health, which membership shall be in addition to that now provided by law; he shall receive from the State Treasurer as his compensation the sum of three hundred dollars per month and his actual expenses incurred while in the discharge of his duties, which shall be presented under oath and covered by written vouchers before receiving the same.

SEC. 2. It shall be the duty of the State Veterinarian to investigate any and all cases of contagious or infectious diseases among domestic animals of the State which may come to his knowledge or be brought to the notice of the State Board of Health or Commissioner of Agriculture, and for this purpose shall visit at once any locality within the State where any such contagious or infectious disease of domestic animals may be reported to exist, and make a full and careful examination of all animals supposed to be diseased, and to inquire into the nature and cause of any such disease which he may discover, prescribe the proper care, necessary remedies, and direct the sanitary measures necessary to prevent the spread thereof; to see that all State laws relating to infectious and contagious diseases of animals are enforced, and to make a full report of his findings and doings in the premises, with recommendations and suggestions as to the means necessary to be employed to prevent the spread, and best calculated to exterminate any and all such contagious or infectious diseases by him found to exist among the domestic animals of the State. All cases of tuberculosis in animals, or any infectious or contagious diseases of domesticated animals that may be brought to the notice of the State Board of Health or Commissioner of Agriculture, shall be referred to him, and he shall be placed in charge of any work that is undertaken by either the State Board of Health or Commissioner of Agriculture to eradicate tuberculosis or any infectious or contagious diseases of any animals, and make a full report of the same to the department which has placed him in charge thereof.

SEC. 3. All Acts or parts of Acts in conflict with any of the provisons of this Act are hereby repealed.

SEC. 4. This Act shall take effect immediately.

Montana.—A bill is pending before the present Legislature providing for the inspection of meat and milk. Senator Metzell, who introduced the bill, urges strongly its adoption in an interview in the *Daily Inter-Mountain*, of Butte City. He forcibly presents the many dangers and deceptions incidental to the unguarded sale of these products. The bill provides for the appointment of inspectors, who must be veterinarians. and graduates of colleges recognized by the United States Veterinary Medical Association. No meat or milk can be sold or given away without the approval of inspectors. Every cow furnishing milk for public sale must be tested with tuberculin and a certificate given for each individual cow.

A bill will also be presented looking to the protection of the interests of veterinarians in Montana.

CONTROL WORK.

Pennsylvania.—Philadelphia meat-inspectors during 1896 examined 139,189 head of cattle. Of this number 172 were condemned and destroyed; 142 for tuberculosis, 5 for actinomycosis, and 25 for various other diseases. 53,372 live calves were inspected, of which number 2156 were too young and unfit for slaughter, and their sale prevented.

A herd of 25 cattle at Kennett Square revealed the presence of 15 tuberculous ones, which were condemned by the State Veterinarian; on slaughter all were found to be affected. At Newtown Square, out of a herd of 54, some 42 were condemned and ordered destroyed.

Iowa.—It is thought that the ravages of hog cholera in this State will entail a loss of 2,000,000 hogs, one-third of the number raised. Another extensive outbreak now prevailing extends over western Illinois and northeastern Missouri, carrying off thousands of hogs.

Oregon.—Three herds of Jersey cattle in this State have been found tuberculous, and a number were destroyed.

National.—The agreement just effected between the Secretary of Agriculture and the Canadian Minister of Agriculture relative to the quarantine of animals passing from one country to another, provides in substance that each country shall accept the veterinary certificate of the other as final, and that they shall keep each other informed of any outbreaks of contagious diseases; that a quarantine of from ten to fifteen days shall be imposed on cattle, ruminants or swine, coming from European countries in which pleuro-pneumonia, or foot-and-mouth disease exists; that breeding cattle shall have certificates of freedom from tuberculosis, or submit to a week's quarantine, and that cattle coming from feeding or stock-ranches must likewise have certificates of freedom from disease of all kinds (except tuberculosis) and exemption of their districts from disease. Provision is made for the admission in bond of cattle in transit at the ports of both countries, and for the regulation of the transit of animals on railways. Sheep may be admitted subject to inspection, with certificates of exemption from scab of the district whence they come, subject to slaughter if disease appears. They are also accorded privileges of passage in bond through ports without inspection. Swine for slaughter may pass without inspection to bonded slaughter-houses, or when properly certified as part of a settler's effects. Liberal rules are laid down for the entry of horses into either country, and particularly for those belonging to Indian tribes and travelers.

SOCIETY PROCEEDINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE regular monthly meeting was called to order December 2, 1896, at 8.45 P.M., at the Academy of Medicine, with the President, Dr. Huidekoper, in the chair. On roll-call the following members responded: Drs. Amling, C. C. Cattanach, J. J. Cattanach, J. S. Cattanach, J. S. Cattanach, Jr., Delaney, Ellis, Farley, Giffen, Gill, Huidekoper, Hanson, Loomes, Machan, MacKellar, Neher, O'Shea, and Ryder (18). The minutes of previous meeting were read and approved.

The Board of Censors (Dr. Gill, Chairman) reported favorably on the names of applicants for membership in the Association of the following gentlemen: Dr. Roscoe R. Bell, of Brooklyn, and Dr. F. E. Winslow, of Flushing, N. Y. The name of Dr. Frank H. Miller, of New York, was referred to the meeting as a worthy applicant, but not registered in the county. Moved and seconded that the report of the Board of Censors be accepted; carried. On vote, all three gentlemen were made members of the Association.

The Judiciary Committee (Dr. O'Shea, Chairman) reported that through our counsel, Messrs. Van Schaick and Norton, a prosecution had been made in the case of one N. S. Bryant, a quack from Kansas, who had issued circulars advertising himself as a "doctor" and "veterinary dentist," "specialist," and had been doing work in various parts of New York. After the arrest of said Bryant the case was heard by Judge Cornell at the Yorkville Court, and, after postponement, at the Harlem Court, Bryant was put under three hundred dollars bond, and the case was finally disposed of in special sessions, with conviction. Moved and seconded that the report be accepted; carried.

The Chair reported that the lists of the registered veterinarians of New York and Kings County had been obtained, and suggested that as the publication of this list would amount to a considerable expense it might be advisable to extend the publication still further by adding other information. (See prospectus, pages 11 to 14, JOURNAL advertising pages, for January, 1897.) The Chair believed that subscriptions and advertisements to this publication would at least pay for it, and would probably bring in a profit. Moved and seconded that the report be accepted and the matter placed in the hands of a committee of three for publication; carried.

Election of officers for the ensuing year: Nomination for President: Nomination of Dr. Huidekoper. Moved and seconded that the nominations close; carried. For Vice-President: Nominations of Drs. Robertson and Ryder. Moved and seconded that the nominations close; carried. For Secretary: Nomination of Dr. Ellis. Moved and seconded that the nominations close; carried. For Treasurer: Nomination of Dr. C. C. Cattanach. Moved and seconded that the nominations close; carried. As there was but one nomination for President, Secretary, and Treasurer, it was moved and seconded that the by-laws be suspended and vote by acclamation for these officers; carried. Ballot was next cast for Vice-President as follows: Dr. Robertson received thirteen and Dr. Ryder five votes. Moved and seconded that the election be declared unanimous for Dr. Robertson; carried.

According to a motion passed at the November meeting a list of all members eighteen months in arrears was taken up for action and disposed of in accordance with Article XII. of the by-laws.

A communication was then read from an expelled member of the Association and referred to the Board of Censors to report on at the next meeting.

The President appointed the following committees for the ensuing year, the officers being *ex-officio* members of each. Board of Censors: H. D. Gill, Chairman; J. E. Ryder, H. D. Hanson, J. S. Cattanach, R. R. Bell. Judiciary Committee: Arthur O'Shea, Chairman; Hanson, Jackson. Publication Committee: H. D. Gill, Chairman; J. E. Ryder, T. Delaney. Moved and seconded that the meeting adjourn; carried.

The regular monthly meeting was called to order at 8.45 P.M., January 6, 1897, at the Academy of Medicine, with the President, Dr. Huidekoper, in the chair. The following members responded to roll-call: Drs. Amling, Bell, C. C. Cattanach, J. S. Cattanach, J. S. Cattanach, Jr., Caulfield, Ellis, Farley, Foy, Gill, Huidekoper, Hanson, Jackson, Loomes, Lellman, Neher, O'Shea, Robertson, Ryder, Sherwood, and Winslow (21). The minutes of the previous meeting were read and approved.

The Board of Censors (Dr. Gill, chairman) reported that as the question of the legality of the expulsion of H. Clay Glover from the Association had been referred back to the Board for their consideration, they wished to submit the following suggestions to the meeting, to wit, that the secretary be authorized to send H. Clay Glover a complete copy of the charges and request him to appear before the Board at the next meeting to answer the same, said notification to be sent by registered letter. Moved and seconded that the report be accepted; carried.

Dr. Lellman then reported a case of "Polyneuritis of a Dog". Moved by Dr. O'Shea and seconded by Dr. Robertson that a vote of thanks be tendered to Dr. Lellman for his report. Dr. Huidekoper then gave a most interesting discourse on "Strains". A discussion followed, which was participated in by Drs. Neher, Robertson, Farley, Gill, and others. Moved and seconded that a vote of thanks be tendered Dr. Huidekoper; carried.

Dr. O'Shea (chairman Judiciary Committee) read the following communication from the Association's Counsel, addressed to the President:

NEW YORK, December 19, 1896.

"We beg to thank you for your letter of the 15th, enclosing check. We have sent a receipted bill to Dr. Cattanach, as requested. We beg to enclose an affidavit in the Bryant case, which Magistrate Cornell said could not be improved upon. We can no doubt adapt it to fill such other cases as may arise. In this connection we may call your attention to the fact that we have serious doubts whether, under the provisions of the Act of 1895, a person could be held as for the commission of a misdemeanor for merely operating without registration. Magistrate Cornell intimated that this was his view, and that he would probably have to discharge Bryant if it had not been proved that Bryant appended a veterinary title to his name.

"It would seem that the only remedy that the Act provides for the practising without registration was a civil suit for the recovery of a money-penalty for such offence. In view of this we can suggest that it might be advisable, in any case where you could prove that the person complained of has assumed a veterinary title, that you should consult with us before proceeding to arrest him.

"We are examining the papers in the Benson case, and will send you our conclusion in a few days. The question involved is an important one, and is not free from difficulties. With reference to the Mulvey case, we have no doubt that the registration would be cancelled on proper application being made. Do you wish us to proceed?

"Very truly yours,
"VAN SCHAICK & NORTON."

(AFFIDAVIT.)

"POLICE COURT, CITY OF NEW YORK.:

"The People of the State of New York on the Relation of 'The Veterinary Medical Association of New York County,' *plaintiff*, against Newton S. Bryant, the name Newton being fictitious, defendant's real name being unknown, *defendant*.

"CITY AND COUNTY OF NEW YORK, *ss.*:

"Rush S. Huidekoper, being duly sworn, doth depose and say that he is the President of the New York Veterinary Medical Association of New York County; that he hereby makes a complaint against the above-named Newton S. Bryant, the name Newton being fictitious, said Bryant's first name being unknown to the deponent, and charges said Bryant with the following offences against the laws and statutes of the State of New York:

"*First.* That the said Bryant is practising veterinary medicine and surgery within the county of New York without being previously registered and legally authorized or licensed by the Regents and registered as required by the provisions of chapter 860, sections 171 and 181, of the Laws of 1895 as amended by chapter 840 of the Laws of 1896; that said Bryant has practised as follows: On or about October 24, 1896, deponent is informed and believes he operated on five horses in the stable of one John Doyle, of 140 West 54th street; that on or about October 10, 1896, he operated on the horses of one Protor, at Tattersalls, at 55th street and 7th avenue; that in or about the last week of September, 1896, he operated on the horses belonging to one Frank Work, at his stables, 157 West 56th street; that on or about October 10, 1896, he operated on a number of horses at the stable of Strauss & Hexter, at 1722 Broadway; that on or about October 19 or 20, 1896, he operated on horses at Tattersalls, at 55th street and 7th avenue.

"That said statutes provide, in chapter 860 of the Laws of 1895, section 184, that any person guilty of violating any of the other provisions of this Act not otherwise specifically punished herein . . . shall be guilty of a misdemeanor.

"*Second.* That said Bryant, without having been authorized to do so legally, appends a veterinary title to his name, and assumes and advertises a veterinary title in such manner as to convey the impression that he is a lawful practitioner of veterinary medicine or of one of its branches; that said Bryant issues and advertises his business by means of a printed circular which deponent has seen and which said Bryant has delivered to various persons known to deponent, upon the first page of which is the following inscription: 'Dr. N. S. Bryant, veterinary dentist'.

"That chapter 860 of the Laws of 1895, in section 184, provides, 'and any person who shall, without having been authorized to do so legally, append any veterinary title to his or her name, or shall assume or advertise any veterinary title in such a manner as to convey the impression that he is a lawful practitioner of veterinary medicine or any of its branches, shall be guilty of a misdemeanor.'"

The Committee also assured the members of the Association that a bill would be introduced by the committee this winter for the exemption from jury-duty of veterinary practitioners of New York and Queens Counties. Moved and seconded that the report be accepted; carried.

President Huidekoper reported on the progress of the *Blue-book*.

An application for honorary membership was submitted as follows: We hereby propose Prof. Alexander Liautard for honorary membership in the Veterinary Medical Association of New York County, as his life-work has been devoted entirely to the elevation and advancement of the veterinary profession in this county. Signed by Arthur O'Shea, J. L. Robertson, H. D. Hanson. This was referred by the chair to the Board of Censors.

The secretary next read the resignation from the Association of Dr. Thomas Giffin; moved and seconded that the report be accepted. Division of vote; moved and seconded that the matter be laid over until the next meeting; carried.

Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS, D.V.S.,
Secretary.

WESTERN ONTARIO VETERINARY MEDICAL ASSOCIATION.

THE semiannual meeting of this Association was held in the City Hall, Stratford, December 29, 1896, President William Gibb, of St. Mary's, occupying the chair. There was a fairly large attendance of members present from different parts of the peninsula.

After reading of the minutes of the last meeting an address was delivered by the President, followed by the report of the Legislative Committee. Papers were read by Dr. Campbell, Hawkesville, on "Lymphangitis;" Dr. George H. Gibb, Seaforth, on "Removal of a Portion of the Spinal Column of a Cow;" Dr. William Gibb, St. Mary's, on "Value of Action and Position as Indications of Lameness in the Horse, and the Diagnosis of its Position." Other interesting and instructive papers were read by Dr. Bowker, Woodstock; Dr. Orr, Baden; Dr. Wilson, Wingham; Dr. Clark, Goderich; Dr. Engle, Milverton; Dr. Hodgins, Stratford; Dr. Eckert, Sebringville. Dr. William Gibb was re-elected a member of the Board of Directors. The fee and annual dues were reduced and several new members were proposed and accepted.

JACOB WAGNER,
Secretary.

MAINE VETERINARY MEDICAL ASSOCIATION.

THE semiannual meeting was called to order by President Russell at Bangor, January 14, 1897. On calling the roll Drs. Choate, Russell, West, Lord, Salley, Joly, Murch, Cleaves, and Dwinal were present. The reports of the secretary and treasurer were read and approved. Dr. L. Sherman Cleaves, of Bar Harbor, was elected to membership.

The following officers were elected for the ensuing year: President, Dr. F. L. Russell; Vice-President, Dr. A. L. Murch; Secretary, Dr. W. L. West; Treasurer, Dr. A. Joly.

President Russell appointed the following Executive Committee: Dr. Huntington, Portland; Dr. Murch, Bangor; Dr. Salley, Skowhegan.

Dr. West moved that the Association give certificates of health to owners of herds tested and found healthy. After a very spirited discussion by Drs. Russell, Lord, Murch, Salley, Joly, Cleaves, and West, the motion was withdrawn.

It was voted to send five dollars to the Committee of the Pasteur Memorial Fund.

Dr. Joly moved that the Association ask the Legislature to amend the Public Law of 1887 for the Cattle Commission to consist of five instead of three members as at present; after a very free discussion, motion lost.

On motion of Dr. Joly, a committee of three was appointed to confer with the State Boards of Agriculture and Health in regard to the State Board of Health taking charge of contagious diseases. Dr. Russell appointed the following committee to confer with State Boards: Drs. West, Joly, and Lord.

Dr. Choate moved that the sentiments of the Association in regard to the Army Veterinary Bill be sent to Speaker Reed; the motion was carried, and the secretary instructed to attend to this matter.

On motion, voted to reconsider the action of the Association in regard to presenting the bill to the Legislature as in 1894.

On motion, voted that the Association pay the expenses of the committee to meet the State Boards.

Voted to submit to the Maine Legislature the bill which will be introduced into the Colorado Legislature. On motion, voted that a committee of three be appointed to look after the interests of the bill and see that it is properly presented to the Legislature. Dr. Choate, Dr. Salley, and Dr. Joly were appointed Committee on Legislation.

On motion, voted that a notice of amendment to the By-laws of the Association, Art. III., section 1, be made to read, "the meeting of this Association shall be held once in three months."

Voted to issue a call for a special meeting at Hotel, North Augusta, February 15, 1897, for the purpose of action in regard to Testing Cattle and Board of Health Acts.

Voted to adjourn.

W. L. WEST,
Secretary.

ONTARIO VETERINARY ASSOCIATION.

THE annual meeting was held in the Veterinary College, Toronto, on December 22, 1896. The meeting was opened with the President, Mr. William H. Hopkins, of Green River, Ont., in the chair. In his opening address the President made a few well-chosen remarks on the benefits to be derived, both individually and to the profession at large, by attendance at these annual gatherings, and he hoped to see still greater interest taken in them in the future by all members of the profession in this province.

The reports of the secretary, treasurer, and auditor were read and adopted.

A motion was carried that the initiation fee be reduced to $3.00 and the annual dues to $1.00.

The following new members were duly proposed and accepted: Mr. James Mayhew, V.S., of Cookstown, Ont.; Mr. S. Lawson, V.S., of Acton, Ont.; Mr. Lawson, V.S., of Dundas, Ont.; Mr. R. F. Golden, V.S., of Windsor, Ont.; Mr. James Gregg, V.S., of Little Britain, Ont.; Mr. J. H. Reed, V.S., of Guleph, Ont., and Mr. A. R. Metcalf, V.S., of Vankleek Hill, Ont.

A discussion then ensued on the proportion of the fines imposed, under the provisions of the recent Veterinary Act, that should be paid over to the prosecutors, these fines being the property of this Association, and it was resolved that as the Association did not wish to be pecuniarily benefited by the fines, but wished to protect the profession, "that the greater part should be paid over to the prosecutor, a small proportion only to be retained to defray necessary expenses.

The election of officers for the ensuing year then took place with the following result: Major Lloyd, President; Mr. S. Sisson, 1st Vice-President; Mr. H. S. Wende, 2d Vice-President; Mr. Sweetapple, Secretary and Treasurer; Directors: Mr. W. Shaw, Mr. W. Gibb, Mr. J. W. Faskine, Mr. W. J. Wilson, Mr. John Wende, Mr. W. Steele, Mr. W. Cowan, and Mr. R. F. Golden; Auditors, Mr. C. Elliott and Mr. J. D. O'Neil. Delegates to the Western Fair Association, Messrs. J. H. Wilson, Secretary, and J. D. O'Neil. Delegates to the Industrial Fair Association, Prof. A. Smith and Major Lloyd.

The retiring President having vacated the chair in favor of the President-elect, a hearty vote of thanks was tendered to Mr. H. Hopkins for his able conduct in the chair and the interest he had taken in the Association during his term of office.

Major Lloyd, on assuming the chair, thanked the members cordially for the honor conferred on him, and promised to do all in his power for the best interests of the Association. Among other matters he urged upon all the members the benefits that might accrue if each one were to give an account at our next meeting of some case of special interest that he had met with in his practice during the past year, even if it were only one case; but he hoped everyone would endeavor to contribute something.

Prof. J. H. Reed, of the Guelph Agricultural College, gave an interesting account of some cases of cerebro-spinal meningitis that he had met with; he mentioned particularly the paralysis of the muscles of deglutition as one of the symptoms. He had had bacteriological examinations made of the water used, and he believed the cause of the disease to have been pathogenic bacteria in the water. Hyposulphite of soda and also nux vomica had been used in the medicinal treatment of the disease.

Mr. R. F. Golden, V.S., of Windsor, Ont., gave an account of the disease among swine that had existed in the county of Essex. He described the symptoms he had observed, also the post-mortem appearances. He mentioned that in some cases the bowels showed more indications of disease than the lungs, while in other cases the reverse conditions were apparent, and frequently both the lungs and bowels were implicated.

Mr. Gibb, V.S., of Stratford, Ont., read an excellent paper on the "Value of Action and Position as Indications of Lameness in the Horse, and the Diagnosis of its Location." Interesting discussions took place at the close of each, in which many members participated. A hearty vote of thanks was tendered to each of the gentlemen mentioned for their valuable contributions. A discussion then came up, in which many took part, on the need for better legal protection to the profession and the best mode to be adopted for endeavoring to secure it, and it was strongly urged that all members of the profession should act in unison, as only by that means can we hope to attain the object in view.

Several other matters of interest were brought forward and discussed.

The sum of twenty-five dollars was appropriated for a medal to be competed for by the students of the Ontario Veterinary College at the approaching spring examinations, and the meeting adjourned.

C. H. SWEETAPPLE,
Secretary.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

A MEETING of the Society was held on December 17, 1896, when the chair was occupied by Prof. Mills.

Mr. Connelley reported a case of "Entropium on the Lower Eyelid of a Fox-hound Bitch." The eye presented a very unsightly appearance, and the animal seemed to suffer a great deal of pain; therefore, at the request of the owner, Mr. Connelley decided to operate, which he did in the following manner: After removing the hair from the part it was well washed with a boric-acid solution, and a 4 per cent. solution of cocaine injected. Mr. Connelley then removed an elliptical piece of skin from the affected lid,and, drawing down the portion in contact with the eye, inserted three stitches, thus bringing the lid into its normal position. The wound was dressed with boric acid and iodoform, and in fifteen days had entirely healed, with the result that the bitch made an excellent recovery.

After complimenting Mr. Connelley upon the success of his operation the chairman called upon Mr. Sugden for his paper on "Pneumonia." After describing the various forms of pneumonia and their pathological appearances, the essayist reported a case which had recently occurred in the college practice and terminated fatally. A full report of the post-mortem appearances, which pointed to lobar pneumonia and acute septicæmia, was given, and of the bacteriological examination, which revealed a general infection by strepto- and staphylococci. The essayist briefly referred to the work done by the brothers Klemperer on the subject of immunity from this disease, and in closing thanked Dr. Martin and Mr. Hammond (Pathological Laboratory, McGill University) for the assistance they had so kindly rendered him. After some discussion by the members on the subject of counter-irritation Dr. Baker and Dr. Martin made some instructive remarks upon the use of aconite in this disease. Before closing the meeting the chairman briefly referred to his experience of pneumonia in dogs.

A regular meeting was held January 14, 1897, the chair being taken by Dr. Charles McEachran.

As there was no business to come before the Society, the chairman called upon Mr. Moore to report his case. This was one of "Acute Indigestion," which occurred in a herd of milch cows through their getting into an orchard and eating a large quantity of seedling apples and subsequently gaining admittance to a field of corn. When driven home and milked they showed no symptoms beyond a somewhat distended abdomen. After milking they were turned out to pasture for the night. The next morning seven or eight of them were found to be staggering in their walk, and the secretion of milk was completely arrested. The owner, upon the advice of a neighbor, administered a dose of pepper to each; in the afternoon of the same day seven of the eight affected were down, and the one still standing was very tympanitic; on attempting to raise the others they were found to be paralyzed and unable to regain the standing position. The above history was related to Mr. Moore on his arrival. On examining the cows he found that they were suffering from a profuse diarrhœa; the one suffering from tympanites was immediately relieved by the use of the trocar, and all received a dose of spirits of ammonia, turpentine, and linseed oil. On the following morning Mr. Moore saw them and found that the three that had regained their feet seemed much better, while four were still down. One old, emaciated cow died some two hours later. All then received a dose of soda, gentian, and nux vomica, and by four o'clock that afternoon the remaining three were on their feet and showed signs of returning appetite. The cows, not having passed any feces since the diarrhœa ceased, received a pint of linseed oil each, and subsequently a pound of magnesium sulphate, which, having the desired effect, all gradually regained their usual health. In the discussion which followed the suggestion was made that the cows might possibly have become intoxicated by fermentation of the apples in the stomach, and thus become paralyzed.

Mr. Killam then read a carefully prepared paper on "Breathlessness," in which he minutely described its various physiological aspects, also pointing out the effects of various altitudes on respiration. In high altitudes the number of respirations would of necessity be increased, owing to the partial pressure of the atmospheric oxygen diminishing as one ascended to such an extent that at an altitude above 8000 feet dyspnœa would be produced, and at one of 17,000 feet asphyxia might ensue, owing to this partial pressure of this atmospheric oxygen being less than in the pulmonary capillaries. After some discussion by the members Dr. Charles McEachran and Dr. Martin made some interesting remarks, and the meeting then adjourned.

B. A. Sugden,
Secretary.

VIRGINIA STATE VETERINARY MEDICAL ASSOCIATION.

The semiannual meeting was called to order by the President, Dr. George C. Faville, in the Odd Fellow's Hall, Staunton, Va., on Tuesday, January 5, 1897, at 11.45 A.M. The roll-call showed a very good attendance. The minutes of the previous meeting were read and approved.

After the report of the various committees and Board of Censors had been received and acted upon Dr. Burkholder read a very able and interesting paper on "The Examination of Horses for Soundness,"[1] which was fully discussed by the author and Drs. Harbaugh, Niles, Roop, and Faville.

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[1] Will appear in March number.

Drs. Niles and Faville reported several cases of "Aphthous Fever," which elicited a warm discussion.

Dr. Faville also reported two cases of "Tetanus," in which the antitoxin treatment was successful.

The President, Dr. Faville, addressed the Association, remarking in part that the standing of the profession is advancing and that the people appreciate veterinary medicine now more than they formerly did. The Association is in a flourishing condition and has accomplished more than any other similar body, although it is one of the youngest. The State Examining Board, office of State Veterinarian, the Act of Legislature relative to contagious diseases, are all the work of the Association. The President also remarked that the State Board of Health should have a veterinarian as an active member, as also should the local boards. Various cities have taken up the subject of tuberculosis, and will doubtless take action in the matter in the near future.

After a vote of thanks to Dr. Burkholder, the resident member, for courtesies shown, the Association adjourned to meet in Richmond on Wednesday, June 23, 1897.

THOMAS M. SWEENY,
Secretary.

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

THE annual meeting of this Society will be held at Madison, 1.30 P.M., February 5, 1897. Papers will be presented on "Laminitis," by Dr. B. L. Clark, Monticello; "Tuberculosis," Dr. J. J. Oberst, Cedarburg; "Reflex Irritation," Dr. H. A. Arpke, Sheboygan. Reports of cases by Drs. Newton, Laws, and Roberts.

W. G. CLARK,
Secretary, Beaver Dam, Wisconsin.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of this Association will convene at Philadelphia on March 2 and 3, 1897. Papers by Dr. Charles Williams on "Cannabis Indica;" Dr. Leonard Pearson, "Tetanus;" Dr. M. E. Conard, "Abortion;" Dr. John R. Hart, "Azoturea;" Dr. F. F. Hoffman, "Eversion of the Uterus and Vagina." Dr. John Adams and Dr. W. L. Rhoads will also present papers. The subject of tuberculosis will be a topic for consideration.

NIAGARA AND ORLEANS COUNTY VETERINARY MEDICAL SOCIETY.

A MEETING of this Society was held at Niagara, January 9th. Members present: Drs. Martin and Crowforth, of Lockport; Williams, of Middleport; Moore, of Wilson; and Thomson, of Niagara. Matters pertaining to the organization were the principal subjects of the deliberations. Next meeting at Medina in April.

VETERINARY MEDICAL SOCIETY OF THE UNIVERSITY OF PENNSYLVANIA.

AT the last regular meeting of this Society, held in the lower lecture-room on Friday evening, January 15, 1897, there was a very interesting address on the study of veterinary medicine and the duties of the veterinarian of to-day and of the future, by our genial friend, Dr. W. Horace Hoskins, a prominent veterinarian of this city. After the address there was an election of officers, which resulted in the electing of the following: President, Louis A. Klein, class of '97; Vice-President, Edward M. Ranck, class of '97; Treasurer, James Beatty, class of '97; Librarian, Stephen Blount, class of '98. Executive Committee: William G. Shaw, class of '97; Ernest P. Spaeth, class of '98; Bassett Kirby, class of '98; and Clinton F. Keiter, class of '99.

The Secretary read the report of the retiring Treasurer, as follows: receipts, $57.77; expenditures, $9.20; balance on hand, $48.57. Signed, Mr. H. Bower, Treasurer. The Secretary reported the receipts of the evening to be $3.50.

After other business of minor importance, the meeting adjourned at 10 P.M.

JOHN E. SPINDLER,
Secretary.

CHICAGO VETERINARY SOCIETY.

IN accordance with the votes of the members present at the last meeting of this Society, a banquet was held on January 14th, at the Sherman House, Chicago, at which the following members of the Society were present: Drs. Walker, George E. McEvers, J. G. Fish, Ryan, Gysel, Campbell, Bond, P. Quitman, E. L. Quitman, Roberts, Schwarzkopf, Hughes, Merillat, Flowers, W. J. Stewart, Johnson, Robertson, Baker, White, Dyson, Leith, Sayre, Hawley, Rishel, Clancy, Casper, and Dr. M. R. Trumbower, State Veterinarian, a visitor. The banquet was very enjoyable, both the service and menu were excellent, and all present enjoyed themselves exceedingly. A toast was given to the Chicago Veterinary Society for its growth and prosperity, in which all heartily concurred.

After the banquet it was moved and seconded to dispense with roll-call and the minutes of the previous meeting, as the hour was late, and that the President call upon Dr. L. A. Merillat for the continuation of his paper on dentistry. This paper was listened to with strict attention. It was instructive as well as interesting, and it met with the hearty applause of all present on its completion.

Dr. Merillat, in this paper, dealt with the diseases of the horse's teeth and the mode of treatment of the affections, describing the entire surgical operations incidental to the treatment and the instruments employed therein, a great deal of which was new to many of the members present. The paper was followed by some discussion and some remarks by prominent veterinary dentists. Those taking active part in the discussion of the paper were Drs. Hughes, Schwarzkopf, E. L. Quitman, P. Quitman, Flowers, Sayre, White, and Casper. On motion, the discussion was closed. A few remarks were made by the President, after which the applications for membership of Dr. Frank Allen, graduate of the American Veterinary College, and Dr. David Kermath, graduate of the Chicago Veterinary College, were offered to the board of censors for their approval. Upon the approval of the board they were both elected to membership by acclamation.

On motion, adjournment.

LAWRENCE CAMPBELL,
Secretary.

Dr. Edington, the colonial bacteriologist in South Africa, claims to have discovered the microbe of rinderpest.

PERSONAL.

Veterinarian E. M. Gatchell, of West Chester, Pa., has been named as a candidate for the office of postmaster of that town.

At the last meeting of the New York County Veterinary Medical Association a meeting of the officers for the ensuing year was arranged for in advance of the meeting. Dinner was served, during which time the business and year's work were discussed. It proved a pleasant innovation, and starts the Society with definite lines of work.

Dr. J. H. Wattles, of Kansas City, Mo., is preparing himself for the practice of human medicine, upon which he expects to enter the coming summer.

Dr. J. E. Craig, of Potsdam, New York, has met with the misfortune of having all his books, papers, etc., burned.

Arrangements have been completed by the horseshoers of Greater New York to have a series of lectures given on the anatomy and physiology of the foot by Prof. H. D. Gill at the New York College of Veterinary Surgeons during the next two months.

Dr. Harry D. Paxson, of Wilmington, Del., has received an appointment as meat-inspector under the Bureau of Animal Industry, and been assigned to duty at Chicago, Ill.

Veterinarian Sol. K. Hoffman, of Hamburg, Pa., is a member of the local judiciary, and dispenses justice in his bailiwick.

Veterinarian W. L. Zuill, of Philadelphia, has entered the field of practice of human medicine.

Dr. S. G. Burkholder, of Denver, Pa., has received an appointment under the Bureau of Animal Industry, and been assigned to duty at Chicago, Ill.

Dr. Webb, the noted breeder of hackneys in Vermont, is not relinquishing the breeding of these horses, as announced, but will reduce the number of his stock, so that more time may be spent in developing the others.

State Veterinarian Leonard Pearson, of Pennsylvania, was a visitor to the Bay State during the holiday season.

Veterinarian A. B. Campbell, of Berlin, Ontario, has received an appointment by the Dominion Government as district stock-inspector, under the regulations now existing between the United States and Canada bearing upon import regulations.

Dr. Cooper Curtice, of Moravia, N. Y., having finished the special work for which he was selected by the Bureau of Animal Industry, announces in a card in several of the agricultural stock journals his desire to render services as consulting veterinarian in infectious and contagious diseases of live-stock.

Dr. W. L. Williams, of Ithaca, N. Y., spent a portion of the holiday season on a trip to the West.

Dr. L. O. Lusson, of Ardmore, Pa., has declined the assignment of the Bureau of Animal Industry to Buffalo, N. Y.

Profs. James L. Robertson, H. D. Gill, of New York, and W. Horace Hoskins, of Philadelphia, were interested visitors to the National Poultry and Pigeon Show at Madison Square Garden during the holidays.

Drs. F. G. Scannell, of New York, and E. C. Switzer of Massachusetts, students of the United States Colleges of Veterinary Surgeons of Washington, D. C., have severed their connection therewith, and returned to their homes.

The Board of Trustees of the University of Pennsylvania have elected Dr. John W. Adams to the full professorship of Veterinary Surgery and Obstetrics in the Veterinary Department of that institution.

President Osgood has been favored by the acceptance of Prof. Theobald Smith, of the Chairmanship of the Committee on Diseases for the ensuing year in the U. S. V. M. A.

Veterinarian Simpson, of Northwest Territory, reports increased interest among the stock-breeders in spaying, and larger numbers are being operated upon each year.

The firm of Messrs. Carter & Waugh, of Pittsburg, Pa., has dissolved. The hospital practice will be continued by Dr. Waugh. Dr. Carter will embark in the preparation of veterinary proprietary remedies.

Veterinarian Hugh Le Jambre, of Bordentown, N. J., was seriously injured by his horse running away; his carriage was wrecked and horse injured also.

Veterinarian Charles Dohan was a keen follower of the hounds of the Lima Hunt Club in its great hunt in January.

In January Dr. R. G. Webster, of Salem, N. J., lost his eldest child by diphtheria, with the disease still afflicting two other of his children.

FACTS AND FANCIES.

Mr. Benjamin F. Poole, of Rockland, Mass., maintains an equine graveyard for the members of the horse family that die in his possession.

The study of phrenology as applied to the horse is attracting more and more attention as its importance becomes better understood.

"Old Ned," nearly forty-two years of age, once black, now grizzled gray, his head white, still lingers under the kindly care of his owner, Mr. B. F. Crawford, Erie, Pa., who received him while on duty in the rebellion in 1864.

August 12, 1874, Goldsmith Maid, made the first mark of 2.15 as a trotter; in twenty years the number has reached nearly five hundred, all of these performers being recorded in full in the Christmas number of the *Spirit of the Times.*

Seven head of Dorset Horn Sheep have just been purchased by a lady and presented to the Schenley Park Gardens at Pittsburg, Pa.

Kentucky veterinarians are strongly in favor of the movement having for its object the securing of the 1897 meeting of the U. S. V. M. A., at Nashville.

The January number of the *American Veterinary Review* contains a photogravure frontispiece of the newly elected officers of the United States Veterinary Medical Association. It is well prepared, and will be much appreciated by the members of the Association.

Many progressive Western farmers are urging the establishment of a government stud, so that choice blood may be obtained at the smallest cost. They think it would be better to spend the money in this direction than in distributing worthless government seeds, causing so great a scandal and waste of public moneys.

Philadelphia consumed during 1896, 97,000,000 quarts of milk. This was gathered from 3300 farms, averaging 15 head of cattle each. The daily supply represents 47 carloads of 150 cans to a car. But 3 to 5 per cent. of this entire supply was found adulterated by the Board of Health through its inspection department.

One of the most noted ancient racers was Phrenico. He belonged to Hiero, of Syracuse, and won the race in the seventy-third Olympiad.

The remains of a fossil horse, about twenty inches high, have been found in Utah, Wyoming, and other parts of the Rocky Mountain regions.

According to Simmonds, Europe had in 1890, 34,865,000 horses; Asia, 4,443,000; Africa, 721,000; America, 21,920,000, and Australia, 1,520,000.

Incitatus was the horse of Emperor Caligula, and was made priest and consul. He had an ivory manger, and drank wine out of a golden pail.

"Nutwood's" grave will be fittingly marked with a suitable stone.

One of Philadelpha's foremost veterinarians, who some years ago completed a course of human medicine, is now gradually entering upon that branch of practice.

The suggestion of the *Breeders' Gazette* for a thorough veterinary department at the Illinois State University, is meeting with warm approval by agriculturists throughout the State.

GLEANINGS.

One gains some idea of the advance in the craft of horseshoeing and how well those who are directing these movements for a better education of the master-shoers of the future, by noting the subjects suggested for consideration at their meeting by the Committee on Science and Literature of the national body:

1. Corns: how to shoe for them. 2. Quarter and toe-cracks: how to shoe for them. 3. Side-bones, and how to shoe for them. 4. Seedy toe: its cause and how to shoe for it. 5. Over-reaching: its cause and how to prevent. 6. Interfering: the cause and how to prevent (hind foot). 7. In-

terfering: the cause and how to prevent (front foot). 8. Knuckling: the cause and how to shoe to prevent. 9. Stumbling: the cause and how to shoe to prevent. 10. Hopping behind: the cause and how to shoe to prevent. 11. Cross-firing and how to shoe to prevent. 12. The tip: its use and abuse. 13. The bar shoe: its use and abuse. 14. The side-weight shoe. 15. The toe-weight shoe. 16. The feather-edge shoe. 17. The roller-motion shoe. 18. Calks: their use and abuse. 19. Rubber pads: their uses. 20. The best rubber pad in use. 21. Hot *vs.* cold fitting. 22. What is a pumiced foot, and how to shoe for it. 23. Levelling and preparing the foot. 24. Handling and securing the kicking horse. 25. How the pacer should be shod. 26. How the trotter should be shod. 27. How the runner should be shod. 28. How the roadster should be shod. 29. How the hunter should be shod. 30. How the combination horse should be shod. 31. How the fire-patrol horse should be shod. 32. How the police-patrol horse should be shod. 33. How the horse should be shod for the farm. 34. How horses should be shod for the lumber woods. 35. How horses should be shod for the mines. 36. How horses should be shod for ice-racing. 37. How to preserve the foot in a natural condition. 38. The never-slip shoe: its advantages. 39. Why does the art of farriery need legislation? 40. What are the benefits of legislation? 42. The scientific horseshoer. 43. How to elevate the craft.

Veterinarians James A. Waugh, of Pittsburg, and William J. Waugh, of the U. S. Army, report additional satisfactory results with the actual cautery in fistulous withers.

A case of equine rabies is reported by Messrs. Carter and Waugh, of Pittsburg. The case followed the bite of a rabid dog some time previously.

The addition of flowers of sulphur to the salt fed to cattle is considered by some an effective method of warding off black-leg in cattle. Sufficient is incorporated to give a yellow coloring to the mixture.

The number of sheep in the world is estimated at 550,000,000. Over one-third of this number are said to be merinos. The United States and Canada make up 46,500,000 of this total.

Dr. Nieman, bacteriologist, of Berlin, Germany, claims the discovery of a new cure for tuberculosis, being the serum from nanny-goats' blood mixed with bacilli of the disease.

The *Revue Vétérinaire* reports that a case of generalized tuberculosis occurring in a she-goat was recorded at the Lyons Veterinary College.

Dr. Roux, in a recent letter bearing upon mallein, makes the following deductions: 1. The dose of mallein solution is 2.5 cc. for a horse of medium weight. 2. In considering the reaction indicating glanders it is necessary to take into consideration the rise in temperature, the local œdema, and the general condition of the horse. 3. When a horse indicates complete reaction inject 2.5 cc. at intervals of about one month. The horse may be considered cured when he has shown no reaction at two consecutive injections. 4. All horses treated in this way are not cured, the treatment being effective only upon those which have but slight lesions. 5. The animals under treatment should be isolated.

Thirty-four thousand four hundred and sixty-two horses were shipped from the United States to Europe during the first nine months of 1896.

Chloral hydrate and bromide of potash combined in watery solution give excellent results in controlling epileptiform seizures in dogs that so often arise from intestinal irritation. A generous dose of sweet or castor oil in the interim of attacks is of advantage.

Some interest is being taken in experiments that are being conducted by Prof. Cossar Ewart in the breeding of what may be called hybrid horses. The experiments have been instituted primarily with a view of throwing light on the theory of telegony. Last year the professor procured from the Zoölogical Gardens, Antwerp, one of the three Burchell zebra sires that are in Europe with a view of having him mated with mares of different breeds. Much difficulty was encountered in getting the zebra mated with mares, and only one foal has yet been produced. The dam of this foal is Mulatto, a young mare lent by Lord Arthur Cecil for the experiment. Mulatto is a jet-black pony of the breed known as the Island of Rum ponies. The foal, which was born on the 12th ult., is a very pretty creature, the characteristic stripes being fawn-colored on a background which is nearly black. If Mulatto's next foal by an equine sire shows any of the characteristic markings of the zebra, then the theory of telegony will have been established.

Veterinarian Waugh, of Pittsburg, reports four cases of tympanites where the escaping gas on abdominal paracentesis burned with a flame when touched with a lighted match in three of the four cases. Those where the gas burned recovered, the other one died. The stomach-trocar was used in one case very effectually.

New York City has decreased her death-rate nearly one-half in the past five years. Much of this gain is credited to a better and purer milk-supply and the use of sterilized milk in children of tender years.

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SOME OBSERVATIONS ON CONCEPTION AND PREGNANCY IN THE MARE.[1]

BY J. A. DELL, V.S.,
ANN ARBOR, MICHIGAN.

CONSIDERING the number of patrons and the great number of patients that the veterinarian is called to serve and attend, but a small percentage of consultations can be classed as pertaining to the reproduction of the species he is called to treat. We are called to treat sterility and the diseases and accidents of pregnancy, more particularly those of the later stages. Occasionally a patron calls our attention to a mare supposed to be pregnant, and asks: "What do you think? Is she in foal?" It is seldom he expects to pay for the opinion and more seldom that the practitioner expects he will. This may be one reason why he is so often answered "I think so and so."

On behalf of the farmer, I think he may be pardoned for asking some of us what we think, for the simple reason so many veterinarians are non-committal on this subject, or admit that there is nothing definite until, to use the stable term, "you see the colt kick," which is not much before the eighth or ninth month of pregnancy.

The farmer or breeder who has grown up in the country has certain traditional rules or signs by which he is guided, but these rules are not always reliable. For instance, he tests his mare until bred, or breeds her on or about the ninth day after foaling; tests her in three weeks, and, if she refuses, every week for four or six weeks. If she refuses the stallion through three periods, she is believed to be in foal and is treated likewise. In the meantime it is noticed if she is dull and tends to flesh; if the crest of her neck gets more firm; if cross to other horses; if the abdomen enlarges; and, later, if the udder swells. Still nothing definite is known until the ninth or tenth month, when the movements of the fœtus become so active that they are easily seen. But other movements of the walls of the abdomen have been mistaken for those of the fœtus, and after observing these symptoms the attendants of mares more or less valuable have faithfully watched weeks and months but no foal appeared.

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[1] Read before the Michigan State Veterinary Medical Association, February 5, 1896.

The relating of such failures to me by breeders, together with complaints against owners of stallions that stood by the season, that they did not give due attention to mares left in their charge, have led me to record some observations on the time of conception and the signs of pregnancy, to ascertain the earliest period when I could give a definite opinion if a mare was or was not pregnant. These observations have extended over several seasons, and include mares of all ages and sizes, from draft to a Shetland pony, all in good health for breeding.

To ascertain the length of the term of œstrum, or heat, I caused mares to be tested each day until it appeared, then tested or bred them each day as long as they would receive the stallion; and in forty cases so tested the shortest was one day, the longest eighteen days. I might add that in the latter case conception took place, while in the former it did not. Excepting this single instance, all continued for four days or over—a few over ten days; but they averaged about eight days, and I believe that can safely be given as the average for mares kept in this climate.

By breeding each day, and testing and not breeding, I find that copulation does not have any tendency to shorten the period. This, to my mind, should dispel the idea entertained by most writers that the heat subsides when conception takes place. Furthermore, I believe that the same number of ova are developed during the period whether copulation takes place or not, just as oviparous animals produce the same number of eggs whether the male fertilizes them or not. Again, many of us know of instances where a bitch had been lined, and several days thereafter had broken away and been lined by a dog of a different breed, and when the pups were born two kinds were in the litter. I have bred mares at the very beginning of the heat; tested, I found them to continue in heat their usual time, yet became pregnant. But in my observations only a small percentage became pregnant if they continued in heat four days or over, and this leads me to believe that the ordinary life of the free spermatozoa is not much beyond three or four days; and mares bred and showing signs of heat on the fourth day, in my opinion, should be bred again to insure pregnancy.

The number of days elapsing between the beginning of one heat and the appearance of the next, like the number of days it continues, varies much. My records show the shortest to be thirteen and the longest twenty-eight days, while a few vary slightly, such as thirteen, fifteen, nineteen to twenty-one, twenty-six to twenty-eight days. It comes so closely to some multiple of seven, that I think we can safely look for its reappearance in fourteen, twenty-one, or twenty-eight days.

I find that these periods are peculiar to the same mare; that is, if it appears in a mare in fourteen days we can expect it at these intervals; but by far the majority can be rated at twenty-one days. I think a fair estimate would be 75 per cent. at twenty-one, 20 per cent. at fourteen, and 5 per cent. at twenty-eight days.

In mares that have foals we are again somewhat at sea as to the number of days that intervene between foaling and the first period of œstrum. Beginning the test as early as the fourth day I have never seen it earlier than the seventh day, and the latest it has appeared during the suckling period was the forty-sixth day. Some mares—but if watched closely, there are very few—show no signs of heat after birth until the foal is weaned.

In the majority of mares it appears on or about the ninth day; but still there are so many a few days earlier or later that it may be looked for any time from the seventh to the twenty-eighth day. Very few go beyond the latter; and as the period of its continuance is liable to be much shorter than the subsequent heats, I believe we should advise testing at least twice a week during that period.

Although in cold weather, in stables not artificially heated, the reappearance of the heat may be deferred even to the passing of one or more periods, in weather such as we have in Michigan from May 1st to October 1st, I have never met with an instance where a mare bred every day or every third day during the heat, and tested as often as twice a week thereafter, and refusing up to and beyond her usual time for its reappearance, did not prove to be pregnant. But to avoid failure from a peculiarity of certain mares I would advise testing twice a week for six to eight weeks; that would take them beyond the second period.

To illustrate the regular reappearance of heat, the length of time it may last, and the results that may be reached by persistent breeding, I will relate one instance: On April 2, 1895, a mare of mine foaled a colt. I did not get the stallion to which I wished to breed her until April 27th. On that date she proved to be in heat; I also believe she was in heat about the twelfth day after foaling, but did not test her. She was bred on the 27th, and each day until May 5th, making nine days. On the 6th she refused, and refused every day until May 11th, fourteen days after first service. She was bred every day until May 17th, seven days. She came in heat again on May 24th, thirteen days after beginning of second heat, and was bred each day until May 30th, seven days, and after refusing each day for fourteen days was then tested twice per week for six weeks, I was able to detect life in fœtus October 30th, five months after last service.

(To be continued.)

ABORTION IN DOMESTICATED ANIMALS.

By Charles F. Dawson,
VETERINARY INSPECTOR, BUREAU OF ANIMAL INDUSTRY.

(Continued from page 79.)

It will be seen from the foregoing remarks that abortion in our animals may be caused by an almost infinite number of conditions. In the case of the human family, with the possible exception of frequent bodily injuries, women are subject to and do abort from many of the same causes which are said to produce abortion in the lower animals. We find in all the standard works on midwifery, and it is a common experience of many persons, that abortion may be caused by numerous agencies, the most frequent being uterine hyperæmia and inflammations, over-frequent coitus, fevers, noxious gases in the atmosphere, states of the nervous system produced by fright, anxiety, sudden losses, shock, constant suckling in those who become pregnant during lactation, obstipation, excessive vomiting of pregnancy, alcoholism, trifacial neuralgia, albuminuria, abnormalities of the pelvis, inflammatory adhesions preventing the normal development of the gravid uterus, an atonic condition of the uterus, malnutrition, severe diarrhœa, tumors, etc. Knowing that any one of these may be operative in producing abortion, is it not reasonable to suppose that some of the same causes may also be operative in the lower animals?

In support of the theory held by many persons, both lay and professional, that strong mental impressions upon the mother are reflected upon the fœtus in utero, I will mention two cases where circumstances seem to narrow the question down to a point where we could hardly account for the conditions present on any other theory. Dr. Theobald Smith[1] had occasion to investigate tuberculosis in a herd of cattle, and used as a diagnostic agent hypodermatic injections of tuberculin. The injections were made in the shoulder and neck regions. In Case No. I. he found a twin-pregnancy, each fœtus being about sixty millimetres long. In each of these fœtuses he found a blood-red spot situated anterior to the shoulder-joint and surrounded by a tributary zone of injected blood-vessels which extended in fœtus No. 1 nearly to the occiput, down the sides of the neck to the median ventral line, and also down the lateral aspect of the forelimb to the carpus. In fœtus No. 2 the left side was more affected than in fœtus No. 1. The hemorrhagic area extended from near the median dorsal line ventrad to the shoulder-joint, a distance of about six millimetres. This vascular injection extended not only over the area described in fœtus No. 1, but also nearly encircled the eye, and extended beyond the ear to the top of the head.

In Case No. II. the fœtus was seventy millimetres long. In front of the left shoulder there was a blood-red spot, suggesting a cutaneous hemorrhage. There was no anastomosing network of bloodvessels as in the fœtus in Case No. I.

In Case No. I. several injections of tuberculin were made, but no definite note was made of the exact points at which they were made. It is highly probable that both sides of the neck were injected, for in Case No. II. careful note was made of the side and exact location of the point of operation, and the post-mortem examination revealed the fact that the hemorrhagic area in the fœtus exactly corresponded with the seat of the tuberculin-injection in the mother.

Dr. Smith examined a number of fœtuses of more advanced age and several of the same age, but did not find similar lesions; and while he does not wish to put forth his discovery as a hypothesis to explain the relationship existing between the maternal organism and that of the fœtus in utero, it seems to me that these authenticated cases may be effectively used as an argument by those who believe that "birth-marks" are due to some disturbance of the nervous system of the mother being manifested in the fœtus.

In concluding his article, Dr. Smith says: "It is probable that we must realize a definite combination of certain conditions before this remarkable effect may be actually seen. These are a certain age-limit of the fœtus, a certain time-limit between the tuberculin-injection and the autopsy, and perhaps a certain impressionable condition of the mother."

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[1] The Veterinary Magazine, 1895, vol. ii. No. 2.

Possibly the blow upon the head given at the time of slaughter of the mother may have had something to do with producing part or all of the extravascular condition of the skin of the fœtus. Granting this, the theory of the reflection of maternal impressions is not disproved, and we are met with the knowledge that this possible cause was of short duration, and of an entirely different character from the tuberculin-injections, which were repeated and operative for a much longer time, and in an entirely different way.

In human medicine we cannot, of course, advance any convincing proof of the theory, held by many persons, that strong mental impressions may affect the fœtus in utero, and evidence themselves by causing certain abnormalities in the offspring. We find recorded in standard works on midwifery statements of authors who take up valuable space to relate the stories of the mothers of children so afflicted concerning the time and character of the circumstances which caused their children to be "marked". Many of these stories contain much strong circumstantial evidence, and would tend to show that there is a most intimate bond of union existing between the sympathetic nervous system or " mind " of the mother and the child she is developing.

If it is true that the vasomotor nervous system of the mother may be sufficiently shocked by a hypodermatic injection of tuberculin, which in a healthy non-tuberculous animal does not even cause a rise in temperature, could we not reason that the results of physical impressions upon the pregnant uterus and its contents are probably limited mainly by the intensity of the impressions received; that many of the cases of sporadic abortion are the outcome of these impressions, and that the differences between the mere transient vascular dilatations noted in the fœtus by Dr. Smith and a complete separation of the fœtal and maternal structures are those of degree only.

Having discussed the subject of sporadic abortion, and expressed my belief that the conditions mentioned are operative in causing it, I will now take up the other variety. Much has been written about infectious abortion, but we know very little regarding its etiology. It is hoped that this preliminary paper may be followed by others which will throw more light upon the subject.

In looking over the literature of the subject one is impressed with the similarity of the prescribed methods of treatment. Even those who try to explain all cases of abortion as being due to one or other of the causes already mentioned in this paper invariably prescribe a mode of treatment which would of itself indicate that, even though their views as to etiology be divergent, they can all meet upon a common ground as regards treatment.

Those who believe that odors, sympathy, fright, etc., are the factors in causing animals to abort could with perfect consistency adopt the cleansing methods of treatment, because by vaginal douches and removal of all material soiled by the discharges they get rid of the uterine *débris* which, were they not so treated, would decompose and give off disagreeable odors.

Those who believe that all cases of abortion are due to infection could, for obvious reasons, also adopt the same sanitary measures; and because each side to the controversy has had more or less success in combating the disease by the adoption of the same sanitary measures each holds to its respective views regarding the etiology.

That there is a form of abortion in animals having as its cause a contagium cannot be doubted. Opinions have been handed down by investigators favorable to the contagium theory, and numerous experiments have been recorded which, while they give no direct evidence supporting the theory, show that there is sufficient evidence for their formulators to make known their views without much fear of successful contradiction.

(To be continued.)

THE EXAMINATION OF HORSES: ITS DIFFICULTIES AND RESPONSIBILITIES.[1]

By A. J. Burkholder, D.V.S.

The examination of horses as to soundness is a function in which every practitioner shares to a greater or less extent. Like many other callings it is one demanding for its efficient performance a large and varied experience of horses in general as well as a full share of that higher technical training which scholastic study affords. The responsibility which attaches to this department of our work is rapidly becoming more and more recognized and insisted upon by those in whose interest we act. The marked and rapid increase in the quality of our horse-stock arising out of improved methods of breeding and a more painstaking system of rearing has very materially led to an increase in their value. With an increase in value there has very naturally arisen a desire on the part of the purchaser to guard against imposition and the many possible disappointments and losses which attach to the purchase of horses. It is mainly on this account that the services of the qualified veterinarian are now so much more in request than they were formerly; but there is also a decided tendency on the part of dealers to evade the responsibilities of "warranty" and to throw the entire responsibility upon the surgeon. This should be taken as a high compliment to the veterinary profession that the purchasers so readily accept this new state of things. By so doing they have declared confidence in the integrity and skill of our craft, and it is a matter of congratulation that whereas our law courts were formerly besieged by litigants seeking redress on account of real or supposed misrepresentations, such cases are now, comparatively speaking, rare.

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[1] Read at meeting of the Virginia State Veterinary Medical Association, Staunton, Va., January 5, 1897.

I cannot help but feel that this more satisfactory state of relations between the vender and the purchaser is, in a large measure, due to the services rendered by our profession in the exercise of their judgment as to soundness, and upon which purchasers are now content to rely without any guarantee from the vender. It cannot, however, be overlooked, as previously observed, that this increase of public confidence has brought with it a corresponding increase in our responsibilities. Circumstances which have recently occurred in connection with several members of our profession have clearly demonstrated this. Serious claims have been set up against veterinarians on account of losses sustained by reason, as has been alleged, of their negligence or want of skill and judgment. And since the verdict of a jury is as uncertain as continuous health and soundness, we must feel a deep sense of insecurity in regard to this branch of our work, and it is to this fact that I wish to direct your attention.

No one who has had any experience in the examination of horses can have failed to recognize the trying circumstances under which we are often expected to exercise this branch of our calling. In no other profession is there a duty so peculiar in its nature or so precarious in its consequences. It is not with an inanimate machine that we have to deal—whose every part may be disconnected, scrutinized, and tested; but a living, complex, ever-changing organism, exposed to and influenced by ever-changing conditions of environment and purpose, and in a large measure also by the abuses of human vice and folly.

In proceeding to deal with this subject it is desirable at the outset to consider the nature of the duty involved, and in doing so we must first, I think, repeat the question so often asked, What is soundness? It has been laid down and is generally believed that "sound" means "perfect." To this definition I take no exception in the abstract; but if it is the standard to be recognized in dealing with horses, then it will be obvious at once that we can no longer hope to speak with authority on the subject.

The vital machinery of the animal organism is hidden away from us, and, except so far as objective physiological signs, cannot be scrutinized. I say, therefore, that this definition of soundness imposes upon us a duty and responsibility which we are not warranted in accepting. We cannot reasonably certify to the physical perfection or durability of any essential part that lies hidden from view because of the fact that slight structural changes or traumatic injuries may exist at the time of examination, which may soon afterward give rise to serious functional, systemic, or organic disease. Further, such a definition is so exclusive in its application to horses as practically to dispose of the necessity for any examination at all, as such a thing as perfection, even in the accessible parts of a horse at the working period of life, is quite phenomenal.

Many members of our profession seem to ignore this fact by claiming that soundness implies that an animal must be practically sound—that even if some abnormal condition exists which does not impair his usefulness, he must be considered sound. According to this definition, the meaning of soundness is the capability of an animal to perform such work as it is best fitted to perform by virtue of its size, build, and general character. This creates a vast discrepancy in the literal and legal sense of the term, and the unfitness of either to the requirements of a rational and consistent system of horse inspection and certification, which needs at this time our serious consideration. Shall we discard this portion of our practice on account of the litigation arising from such diversity of opinion, or shall we adopt a form of certification which by its literal and legal construction will not only relieve us from censure and responsibility, but afford our clients sufficient protection? The usual fee demanded for examination is wholly inadequate for any special warranty of soundness. Why, then, should we assume such a position? If we are forever afterward subject to costs incurred defending ourselves against persons who, by reason of their inability to place the proper value upon an animal, set up claims of unsoundness at the time of purchase, had we not better look well to our interest and obviate any trouble that might arise by misinterpretations and misconstructions by courts and juries? I will submit a form of certification which will, in my opinion, give to our clients all that should be expected from the hands of an honest, conscientious practitioner.

CERTIFICATE OF EXAMINATION.

Issued to Mr.   upon the following-described animal:
Sex—gelding.
Age—six years.
Color—dark bay.
Points—two-inch star.
Scars—two-inch cicatrix on right forearm.
Height—15-1.
Breed—Hambletonian.
Class—American roadster.

Having made a careful and complete examination of the above-described animal, I hereby certify that I fail to detect any unsoundness.

Given under my hand, this 1st day of January, 1897.

That this form of certification admits of and encourages the practice of fraud and deception by unprincipled persons, I will not deny, but in all such cases redress can be had in our courts. The laws of our State are sufficiently severe on such culprits, and should be promptly enforced in all such cases; but where honesty of purpose prevails no responsibility should be implied. We cannot vouch for the honesty and integrity of the surgeon, neither can we assume to testify as to his skill in this important branch of our practice; but this risk should be taken by the client.

We are supposed to possess that higher degree of trained power of observation requisite to perfect knowledge of the anatomical structure and normal function of every part of the animal economy. This superior ability may be conceded to the most learned of our profession, but even the most skilled are often unable to meet the contingencies liable to occur under existing influences.

THE students' society of McKillip Veterinary College devotes part of its meetings to debate on topics of special interest in their work. Great interest is manifested in this College association, and its value to students is very noticeable in the increased interest shown in their studies.

ACUTE SYNOVITIS, OR OPEN JOINT.

By W. J. Martin, V.S.,
KANKAKEE, ILL.

Open joint is a lesion often met with in veterinary practice, and is one which causes the veterinary practitioner much anxiety and hard work in his endeavor to restore the animal to its former condition of soundness, or, at least, to a condition in which it can perform a certain amount of hard labor for its owner. Very often all this medical skill is of no avail, and what seemed to the layman a trivial injury speedily ends in the death of the animal or a hopelessly crippled condition.

Etiology. Open joint may occur in any joint of the body, though the stifle, knee, hock, and navicular joints are most frequently affected. Very often the navicular joint is opened either directly by a penetrating nail or by suppuration from the inflammation resulting from such an injury. Open joint may also follow a severe attack of acute articular arthritis. The most prolific causes of open joint, however, are traumatic injuries, such as kicks upon the joint by another animal, falling upon the knees while drawing heavy loads, or, in driving and race horses, while being driven at a high rate of speed. The pitchfork in the hands of an angry groom is often a prime cause of this disease.

Semeiology. Very often the wound of the joint appears to the casual observer of a very trivial nature, so much so that perhaps a couple of days may pass without the animal showing much pain or stiffness in the injured limb. At about this time, however, the animal does begin to show signs of being stiff in the injured joint, and also appears unwilling to advance the limb forward, if made to walk, or to rest it firmly upon the ground if at rest. In other cases the skin and even the deep tissues, such as the tendons which pass over the joint, and even the capsular ligament which surrounds the joint, will be found lacerated and destroyed, and synovial fluid will be seen escaping directly from the joint. It is well in all cases of open joint to be able to discriminate between the mere opening of a synovial bursa, a synovial sheath, and that involving the true articulation of a joint. The former of these is often of a trivial character and readily yields to proper treatment. The second is of a more serious nature, and often gives rise to the destruction of the fibres of the tendons which pass through them. An incised wound caused by a sharp-cutting instrument is much more amenable to treatment than one caused by a blunt one. The latter often bruises and lacerates in a most serious manner, and, if the joint is not directly opened by the injury, it is very apt to become so in a few days, owing to the sloughing of the bruised parts.

A horse suffering from open joint in the early stage presents many typical symptoms which the eye of the experienced practitioner readily detects. A horse has received an injury, say, on the hock-joint by a kick from another horse. A few drops of blood may be seen on either the inner or outer surface of the joint, as the case may be. The wound is to all appearance trifling, and the owner keeps the animal at work. By the second day, however, the joint is found to be somewhat swollen and stiff, the animal shows much pain and uneasiness upon being compelled to move around in the stall; at this time also there may be seen a slight oozing out of fluid at the point of injury; this fluid is of a clear, oily nature and very slippery, having a tendency to glide rapidly over the hairs below the seat of injury without adhering to them. This is synovial fluid. We are then confronted by a case of true open joint, together with a long line of pathological evils that arise from it.

Very often in the first stage of the injury the synovial fluid may be mixed with a whitish or frothy-looking serum. In the later stages—that is, after the injury is of several days' duration—this discharge often assumes a bloody, purulent form, in which more or less pieces of the cast-off edges of the diseased synovial membrane and the articular cartilage will be found. At this stage the whole joint is greatly swollen and intensely painful, owing to the exudation of lymph into the surrounding tissue, which becomes partly organized. If the disease has been going on for, say, ten days, we find the lateral portion of the joint the seat of numerous fistulous tracts leading from within outward from the bones of the joint.

This description perhaps ought only to apply to joints which are composed of numerous bones, such as the hock, knee, etc., because the more bones there are in the articulation the greater will be the amount of inflammation present.

In nearly all cases of open joint the appetite will be impaired, while thirst will be much increased. The temperature will often be found to rise from three to six degrees above normal. The pain always is most intense, the animal frequently catching the limb up in a spasmodic manner nearly to the body, and then gradually lowering it until the weight of the limb is supported upon the toe of the hoof. The breathing is accelerated, respiration often being from thirty to thirty-five per minute; perspiration bedews the flanks and caput muscles of the shoulder; the face presents a pinched and anxious expression, plainly showing the great amount of pain the animal is suffering. In a well-bred animal, and if of a highly nervous temperament, all these symptoms mentioned may be much more marked. On the other hand, if the animal is of a dull, phlegmatic disposition, but little constitutional disturbance may be present.

Termination. As termination of this disease we may have resolution, suppuration, gangrene, articular arthritis, and anchylosis. In severe cases of open joint occurring in the horse resolution takes place but seldom; it is much more apt to end in the destruction of the articular cartilage covering the ends of the bones, and even the vascular structures of the bones themselves are laid bare by the inflammation. As a result of this inflammation we have an exudation of bone-forming lymph taking place within the cancelli and Haversian canals of the bones forming the articulation, which effectually fill up these openings, and becoming confluent become organized into bone, thus binding the entire articulation into a solid mass of bone. This pathological condition is the most common termination of open joint. Frequently the diseased joint will become enormously enlarged by the osseous deposits which take place around it.

Treatment. There seems to be a wide difference of opinion among veterinarians the world over in regard to the proper treatment of open joint. Some men who are considered authorities on the practice of veterinary medicine and surgery advocate a certain line of treatment which might be considered diametrically opposite to that advocated by others equally prominent. On account of this difference of opinion the careful practitioner must largely rely upon his own resources, and base his treatment largely upon common sense and the facts which each particular case presents to his observation. In cases where there is much laceration of the skin and tissue covering a joint, if, after removing all foreign bodies which may be in the wound, such as small gravel, pieces of wood, dirt, etc., it is then found impossible to bring the edges of the wound together with sutures, and the injury has but just happened, I try to keep the animal as quiet as possible, and, at the same time, to exclude atmospheric air and disease-germs. I brush lightly over the wound a solution of flexible collodion. In the knee, if the seat of injury is between the radius and the upper row of carpal bones, I find it an excellent plan to render flexion of the limb impossible. This may be accomplished either by means of a splint applied to the posterior part of the leg, or by means of a plaster-of-Paris bandage placed around the joint, leaving the seat of injury exposed for dressing. This cannot be done so readily in the hock-joint, though even here it has given me most excellent results.

All probing and unnecessary handling of the injured parts are to be avoided. The incautious use of the probe has often changed what at first was a deep wound, but not involving the joint, into that of an open joint by the irritation set up by the probe.

Where there is much inflammation present in the joint, together with the discharge of bloody pus mixed with synovia, showing that destructive tissue-metamorphosis is going on within the joint, warm anodyne applications must be used. These may be in the liquid form, though I prefer them in the form of a cataplasm of linseed-meal medicated with some antiseptic, such as phenic acid, tincture of iodine, or oil of eucalyptus. Very often, in the early stages of the disease and where the opening into the joint is small and not much laceration of external tissue has taken place, a smart blister applied all around the joint serves, effectually to stop the flow of the synovia. Warm water in which a small amount of chloride of zinc has been dissolved, say, one drachm to a quart of water, may also be allowed to flow in a gentle stream over the wounded joint. This serves to mechanically coagulate the synovial fluid, which in turn acts as a plug, thereby arresting the flow of the synovia. In no case should this plug be removed or in any way disturbed in dressing the joint.

In those cases of some days' standing, and when the discharge is composed largely of pus, it will be useless to attempt to arrest the discharge from the joint by any of the means mentioned here, because, even if we did succeed in arresting the flow at the seat of injury, it would soon break out again in some other part of the joint. At this stage of the disease recovery by anchylosis is our only hope.

Should the body-temperature run high, antipyretics, such as quinine, salicylate of sodium, acetanilid, etc., should be given internally. If the bowels become constipated, which they are very apt to be, enemas of warm water should be given, followed by a saline laxative. Saline laxatives are indicated here because they have really a double action—acting upon the urinary organs, and thereby increasing their activity and thus eliminating from the blood its morbid products.

During the first few days, while the temperature is high, the animal if inclined to eat should be fed most sparingly; bran and a small amount of hay is all the animal should receive.

At the beginning of the disease the animal should be placed in the slings. These should not be drawn too tight at first, because if the animal is raised too high he will probably worry very much, and the sling will then do more harm than good. When the flow of synovia has ceased and the joint remains hot and swollen, blisters should be applied around the entire joint; later, if the process of anchylosis is taking place slowly, these should be of the most potent kind to overcome the existing lameness. The best blister for this purpose is the ointment of biniodide of mercury and cantharides in combination, two parts of the former to one of the latter. When these fail resort must be had to the actual cautery, and this must be used with no light hand.

AN EPIDEMIC OF PURULENT INFLAMMATION OF THE MILK-DUCTS, AFFECTING SEVENTY COWS.[1]

BY WILLIAM ROYAL STOKES, M.D.,
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AND

A. W. CLEMENT, D.V.S.,
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THE first clinical observation of the probable transmission of disease through milk dates back as far as 1764, when Sagar described a number of throat affections and aphthous ulcers of the mouth which he attributed to drinking the milk from a certain cow. This communication seems to have attracted but little attention at the time, but its correctness has of late been confirmed by the objective demonstration of various pathogenic bacteria in the milk of cows, especially in that of animals suffering from an inflammatory condition of the udder and teats, called garget.

Nivens has described an epidemic of diarrhœa affecting 160 persons in which the source of infection was traced to the milk from a cow affected with the above disease. The cultures from this milk showed the presence of the bacillus coli communis and the streptococcus pyogenes. Kruger, in 1890, was one of the first to find the pyogenic cocci in milk of diseased cows. He observed many pus-cells in a case of suspected bovine tuberculosis, but failed to demonstrate the presence of the bacillus tuberculosis. He observed, however, many groups of cocci, which he proved to be staphylococcus pyogenes aureus, capable of producing subcutaneous abscesses in rabbits. Guillebeau also examined the milk of seventy-six cows with inflammation of the udders, and found in all of the cases varieties of the pyogenic cocci, which were often virulent when inoculated into animals. Further, similar cases are reported by Karlinski, Escherich, Longard, and Adamitz.[1]

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[1] From the Bacteriological Laboratory of the Health Department of Baltimore.

Clinical Observations. I was called upon professionally in August to attend a herd of cattle which, as the owners said, were "milking pus." I found a herd of about one hundred cows, all affected to a greater or less extent. They were all nearly dry, and what milk could be obtained was thick and yellowish. The cows stood in a double row of stanchions. The history, obtained after careful inquiry, was that the disease first appeared in one cow; that the owner's attention was called to the condition of the milk by the retailers who bought it. The infection spread to the rest of the herd with great rapidity, so that in the course of two or three weeks the whole herd had become infected.

These cattle were at the time on pasture, fed twice a day on mill-feed, and, according to the foreman's statement, milked regularly. Further inquiry brought forth the information that a strange man had hired out on the farm, who was an experienced milker, but who sought professional advice from the physician attending the family for a sore upon his finger, which he said he got from milking cows on a large dairy-farm in York, Pa. This man left the place in about a week, and in a few days after his departure the disease appeared in the first cow, soon followed by its appearance in the rest of the herd. Cleanliness and irrigation with warm water gradually caused the animals to become dry, in which condition they have remained up to the present time.

A complete autopsy was made upon one of the cows, but nothing abnormal was made out with the exception of a purulent inflammation of the somewhat dilated milk-ducts. Cultures from the blood of the heart and the internal viscera remained sterile.

Histological Examination. Sections through the diseased portions of the mammary gland show that the larger milk-ducts are dilated and are either empty or plugged up by masses of polynuclear leucocytes. This condition, however, is much more marked in the secreting acini of the gland. These are often markedly dilated, and for the most part contain large or small accumulations of pus-cells. This process ends here, and there is no sign of inflammation in the surrounding connective tissue, the suppuration having limited itself to the milk-ducts and acini of the gland. Although we were only able to secure one autopsy, yet the absence of any local swelling in the mammary glands of the other cows would seem to show that the condition was a similar one in the rest of the herd. The lymphatic glands surrounding the mamma were found to be normal.

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[1] References from Report of the Health Officer of the District of Columbia for 1895.

Bacteriological Examination. The cultures were obtained from two different cows. The methods of procedure were similar in both cases and the results identical. The teat was carefully washed with soap and water, and the creamy fluid was then squirted from an affected teat into a sterile tube without allowing the teat to come into contact with the opening of the test-tube. Cultures were made soon afterward at the laboratory.

Cover-slips showed that this fluid consisted entirely of pus containing a moderate number of short chains of streptococci. Plate-cultures in twenty-four hours showed a moderate number of fine, pin-point gray colonies which consisted of short chains of cocci, staining by Gram's method and the ordinary aniline dyes. The organisms grew invisibly on potato, coagulated and acidulated milk in twenty-four hours, formed small gray colonies on "slant" agar, turned litmus agar-red, and grew in fairly long chains in bouillon. Gelatin was not liquefied.

Inoculations. White mice were inoculated subcutaneously with the pus from the udders and with pure agar-cultures. Guinea-pigs were also inoculated subcutaneously with the pus, and were given one cubic centimetre of a pure fluid-culture of the organism. All of the animals survived these inoculations for several weeks. The capriciousness of the streptococcus as regards virulence, however, is well known, and this fact does not disprove its species.

From our experiments, we are of the opinion that we have demonstrated the presence of the streptococcus pyogenes, possessing a low grade of virulence.

The study of this epidemic presents several points of interest. Garget has been caused experimentally by wounding the udders, and allowing the wound to come into contact with various non-sterile materials. Assuming that one or several of the herd may have become affected in a similar fashion, or from contact with an infected finger, the gradual transferrence of the disease from cow to cow can be plainly traced to the hands of the milker, from the history of the epidemic. The similarity of the process to that of gonorrhœal inflammation of the mucous membrane in man is also a point of considerable interest, although, of course, the causes differ.

From our observations gained from the routine microscopical and bacteriological examination of milk, we believe that the dangers of infection can be materially lessened by the observance of a few simple precautions, and by the use of the microscope. Clean hands, milking utensils, udders, and stables are, of course, important.

We have also found many pus-cells in the centrifugalized sediment obtained from the mixed specimens from several large herds, and in one instance we were able to trace the source of the pus to one cow having a local abscess of the udder. After the isolation of this animal we were unable to demonstrate the presence of any more pus in the milk from the rest of the herd.

Although we are aware that it is impossible to obtain a perfectly sterile milk directly from the udder of a healthy cow, yet we believe that the presence of many colonies of the staphylococcus pyogenes aureus or streptococcus pyogenes, when obtained from a "slant" culture of a single platinum loop made from the milk drawn according to the method mentioned above, renders this fluid unfit for use, especially for infants.

Cultures thus made from the last portion of the milk drawn from a healthy cow are usually either sterile or contain only a few colonies of a white coccus or other bacteria. On the other hand, the milk of animals suffering from garget shows many colonies of the pus-cocci and often contain many pus-cells.

OVARIOTOMY.

By Thomas V. Simpson, V.S.,
N. W. T.

On reading up the subject in most works that deal with the operation of ovariotomy I get a very limited amount of information from them, as they do not deal with the operation in a manner that would be of much use to an operator who had large numbers of cows on a single ranch or farm to spay.

The reason I introduced spaying into this district was because nearly every stockman had a number of aged cows that he wanted to get rid of, and, as most of the farmers or ranchers allow their bulls to run with the herd, the old cows continue to drop a calf every year until they get so old that they will never make beef. Another reason is because most of the calves are females, and the deficiency of steers could be overcome by spaying the heifers. Also unspayed cows running with a bunch of steers are the source of a great deal of annoyance during the period of heat.

Most of those I did were operated upon through the side, as I find it the quickest and most convenient method; moreover, it is quite as safe in the hands of a careful operator. All of those operated on by the flank method did exceedingly well, notwithstanding thirteen of the one-year-olds spayed during hot weather got badly flyblown, making it necessary to put them in a stable and thoroughly cleanse every wound of maggots and dead tissue. I took out all the dead tissue with a pair of forceps, and left a healthy, open, granulating wound, afterward dressing with a solution of a preparation of creolin. They had been flyblown nearly a week before it was noticed that the flies had been at the wounds. Also the seven aged cows spayed during hot weather got flyblown, and were treated in the same manner with satisfactory results. Of the thirty-eight operated on, two of the aged cows showed signs of heat a month or two after the wound was healed, but none of the others have shown any signs whatever.

The way I operate through the flank is as follows: I first cast the animal by putting a rope around the horns, or in the case of a mulley around the neck, and tying to a post; then take another rope somewhat longer (we use a lasso here), and pass it around the animal's body, and tie so as to form a slip-knot. When the knot is on, slide the rope back over the hindquarters and down to the hocks, and then draw the rope tight around the hocks. This proves to be an easy method of getting the two hindfeet into a rope. Then draw tight and the animal will fall. Then tie to a post opposite to the one the head is tied to. This stretches the animal out straight and puts her in a favorable position for operating. She must be laid on the right side, as the incision is made over the rumen on the left side. I generally tie another rope to the lower forefoot after the animal is down, and tie it to something so that she cannot get her forefeet under her and roll over.

Now for the operation. Two buckets are necessary before commencing to operate; one containing a solution of creolin, or some other good antiseptic, into which the instruments are placed, the other containing pure water and castile or some antiseptic soap.

The latter solution I use in case my hands get a little dirty between operations. The instruments necessary are a scalpel and a spaying écraseur or shears; also a good heavy needle and silk or linen thread. I use the linen, and find it quite good enough for cattle. The incision is commenced in the upper part of the flank on the left side about four inches downward and forward from the external angle of the ileum and continued for four inches downward. Make the incision through the skin and subcutaneous connective tissue first, then through the obliquus abdominis externus muscle until the fibres of the obliquus abdominis internus are seen running anglewise across. Now the scalpel is needed no more, as it is better to part the fibres of the internal oblique muscle with the fingers than to cut through. Gradually part the fibres until the peritoneum is reached; then by using the index-finger you can puncture the peritoneum without much trouble. Gradually enlarge the opening until the hand can pass in.

It should not be necessary to state that the hands must be perfectly clean before commencing to operate. Cut the finger-nails short, and thoroughly scrub the hands in a 1 to 1000 bichloride solution; then you need not be afraid of any abscesses or foul running wounds forming in the region where the operation was performed.

Finding the ovaries is the most difficult part of the whole operation. The right hand I find best to introduce. In very young animals the ovaries can be found in the anterior part of the pelvic cavity by first finding the uterus, which is no easy matter, and following it forward until the ovary is found at the end of the cornu. In old cows it is more easily found. The uterus is felt as a firm organ and can be easily followed up until the ovaries are found about four or five inches from the end of the cornu. It is preferable to remove the furthest ovary first.

After removal of the ovaries all that remains to be done is to cleanse the wound and put in two or three good strong sutures in the skin and external oblique muscle. The fibres of the internal oblique will come right back to place and unite in a very short time.

The after-treatment consists in allowing plenty of freedom and seeing that no flies irritate the wound. Pine-tar makes a good application after the wound is sutured, and will help to keep the flies away.

I forgot to state that before making the incision in the flank the hair should be shaved off either with the scalpel or a razor.

As to the time of the year to operate I prefer late in the spring or early in the summer, before the blue-flies make their appearance. One year old is about the proper age to operate on young cattle.

Annexed is a list of cows I operated on and a few notes added thereto.

No.	Age.	Condition of animal.	Tim of year.	Weather.	Method of operation.	Remarks.
1	4 years	Fair	May 7	Good	Side	Placed in stocks and operated on standing; did well.
2	1 year	Good	June 5	Moderate	Side	Did well.
3	1 year	Good	June 5	Moderate	Side	Did well.
4	4 years	Good	June 5	Moderate	Side	Showed signs of heat day before; did as well as the rest.
5 to 13	Aged	Poor	June 9	Very wet	Side	Did extremely well. Two of these cows showed signs of heat about two months afterward.
14	3 years	Good	June 25	Good	Per vagina	Not much inclination to move freely for two or three days; afterward did well.
15	3 years	Good				
16	6 years	Fair				
17	7 years	Fair				
18	2 years	Good	June 27	Wet	Per vagina	Virgin; very hard to operate on; did well.
19 to 31	1 year	Good	July 4	Hot	Side	Got flyblown; did well; very easy to operate on.
32 to 38	Aged	Very poor	July 7	Very hot	Side	Got flyblown; did well afterward.

Where corn is fed unground to horses care should be used not to let them have it in a mouldy condition. A few years ago, at Poughkeepsie, N. Y., eighteen horses in one stable were fed damp corn which was invaded by white mould. All the horses were attacked with violent symptoms and eight of them died. Many other similar cases are reported.—*Orange Judd Farm.*

The *Therapeutic Gazette* recommends a drachm and a half of picric acid and three ounces of alcohol, to which two pints of distilled water are added, as a suitable and effective dressing for burns. Apply to the burned parts with absorbent-cotton, well soaked. Prick the blisters and apply the bandages lightly where possible. It eases pain and limits the tendency to suppuration by coagulating the albuminous exudation, the healing taking place under a scab consisting of epithelial cells hardened by picric acid.

Glycerin injected directly into the uterus hastens the expulsion of the contents, and is worthy of a trial in canine practice, especially among the bull-terrier class, where difficult parturition is ofttimes met with.

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF ALEXANDER GLASS, V.S.,
PHILADELPHIA, PA.

ONE MEANS OF TELLING THE SEX OF A PIGEON. Hold the pigeon lightly in the hand and lay it on its side, allowing the feet to be free. After the bird becomes quiet, if it holds the tail up and the feathers together, it is a male; if the tail-feathers are spread out like a fan, it is a female. The bird can also be held by the wings, and in this position the shape of the tail is very characteristic.—*Paul de Bart.*

OBSTRUCTION OF THE INTESTINE AND LAPAROTOMY. A watchdog that had been playing with a small rubber ball presented, several days afterward, all the symptoms of an intestinal obstruction on which emetics or purgatives had no effect. The subject was brought to the veterinary college and anæsthetized by Dastre and Morat's mixture, and shortly after administering the chloroform solution the animal presented symptoms of syncope; but after having performed artificial respiration for a short time the respirations became natural and the operation was proceeded with. An enlargement was felt on the right side, just anterior and below the kidney. An incision was made on the abdominal wall, and the intestine was found very large, congested, and hard. An opening was made in the intestine about four centimetres long, and a small playball was taken from it. To assist in making the suture in the intestinal wall a piece of bread was moulded the shape and circumference of the intestine and put in the opening, which greatly assisted the suture being properly made; the peritoneum and abdominal walls were stitched, and lastly the skin, and an antiseptic was applied to the region. The day following the operation the animal was put under a special regimen, externally having the application of the antiseptic and internally small doses of benzonaphthol. The operation was followed by a quick recovery. It goes without saying that in an operation of laparotomy all antiseptic precautions must be taken.—*Journal de Médecine Vétérinaire et de Zootechnie.*

SPASM OF THE NECK OF THE UTERUS. M. Strebel, after a long series of observations, thinks that spasm of the neck of the uterus is very rare, if it really exists at all. By this term he means where there is a persistent contraction of the neck of the uterus lasting two, three, four, or even five days. With all due respect to the various veterinarians who have written on the subject, he thinks it is only a natural condition, and that spasm of the neck of the uterus is only an indication that the contractions are premature, and when the proper time has arrived the neck will relax and labor will proceed in a normal way. He thinks surgical interference should only be made when the neck of the uterus is found indurated, due to calcareous infiltration, and that the various therapeutic methods employed at present, such as belladonna, atropine, injections of hot water, etc., enjoy a reputation they do not deserve. In the majority of cases he advises that the animal should be let alone, awaiting developments.—*Schweizer Archives.*

NITRIC ACID IN THE TREATMENT OF UMBILICAL HERNIA IN COLTS. M. M. F. Peuch has treated four cases of umbilical hernia in colts with nitric acid, and has had good results in each case. There is little fear of protrusion of the bowel, and, as a rule, but one application of the acid is necessary; if it does not have the desired effect, a second application may be made ten or fifteen days afterward.

The method of operation is very simple. Take a piece of oakum, and after saturating it with pure nitric acid paint the tumor over its entire circumference, passing the oakum over it three or four times.—*Journ. de Méd. Vétérin. et de Zootechnie,* 1896.

HYPERTROPHY OF THE PROSTATE. M. E. Lienaux has made certain observations on hypertrophy of the prostate, and gives the results of his observations in four cases, having made post-mortems on three of them, confirming his diagnosis:

CASE I. *Hypertrophy of the prostate, with intermittent hemorrhages.*—A large Ulmer (Great Dane), about nine or ten years old, apparently strong and healthy: after micturition or exercise a slight amount of blood escapes from the penis. An examination of the prepuce, foramen, urethra, and the bladder does not reveal any diseased condition; but on making a digital examination per rectum the prostate was found much increased in volume, being about the size of an egg and very hard and tense; the blood passed was pure and contained a large number of spermatozoa. On passing the catheter the urine is found to be clear and not subsequently followed by the passage of blood; hemorrhage being caused by the enlargement of the prostate, blood is only passed when there has to be some pressure exercised to pass the urine. Palliative treatment was advised and greatly relieved the symptoms, but six months afterward there was complete retention of the urine; it being impossible to pass the catheter, the author took away the urine with a trocar (cystopaxie). The animal died a short time after the operation. On post-mortem the ordinary changes present in uræmia were found, and also considerable enlargement of the prostate. The gland was the shape of two nuts, the two lobes being entirely separated; the structure was homogeneous and soft, being a case of simple hypertrophy.

CASE II. *Cystic calculi following hypertrophy of the prostate.*—The dog, seven years old, had hæmaturia for several months, followed by retention of urine. On examination a calculus was found in the groove of the os penis; on performing urethrotomy the stone was removed and the bladder emptied; while doing so about a dozen small stones were passed and a great amount of sediment. The owner having abandoned the animal, it was destroyed and an autopsy was held. Sixteen small calculi about the size of small peas, spherical in shape and smooth and glossy, were found in the bladder. Chemically they were composed of phosphate of ammonium and magnesium. The prostate was greatly enlarged, being 150 mm. in circumference.

CASE III. *Perineal hernia and hypertrophy of the prostate.*—A very large dog, aged twelve years, had an enlargement beneath the anus on the right side, which varied in size; if pressed suddenly it was easily reduced, but after continued manipulation it became very hard; the animal passed urine with difficulty. A diagnosis of hernia of the bladder was made; an opening was made through the perineum upon the bladder, and by that means it was reduced. Some time afterward the same condition recurred and was treated in a similar manner, but when it occurred the third time it was necessary to perform cystotomy. The animal died a short time afterward from hemorrhage, consequent on the operation. On post-mortem a very large prostate was found.

CASE IV. *Hypertrophy of the prostate, with hydronephrosis.*—This was a case of hydronephrosis, and on post-mortem there was found to be broncho-pneumonia and also decided hypertrophy of the prostate. This last anomaly was the only obstruction that interfered with urination. The prostate measured 150 mm. in circumference.

Summary. It is very easy to understand the causes of these diverse alterations. The prostate, being hypertrophied, presses on the rectum and on the urethra, causing an interference to the free passage of urine and the feces. The interference to the passage of urine causes a hypertrophy of the muscular coat of the bladder to compensate for the obstruction; this is sufficient at first, but as the disease goes on and the pressure becomes greater constant retention is followed by paralysis of the muscular coat of the bladder, inflammation, or sclerosis, and finally the formation of a calculus. The hemorrhage is produced as a consequence of the hypertrophy of the gland. The pressure constantly exercised on the vesico-prostatic circulation interferes with the circulation, causing congestion and hyperæmia, and hemorrhage is caused by the great effort made in urination. The hernia of the bladder is caused by the bladder being greatly distended and causing relaxation of its attachments, making it extremely mobile, and when the animal makes constant efforts to urinate it is forced out of position by the great pressure. The treatment of hypertrophy is either palliative, by means of laxatives, fomentations, etc., or castration as a radical treatment.—*Annales de Médecine Vétérin.*, 1896.

EDITORIAL.

OUR SECRETARIES OF AGRICULTURE.

The present month will witness the closing acts of the present national administration of the Department of Agriculture and the incoming of the new. Much has been said, more has been written, of the present administration than any of its predecessors for many years. The greatest diversity of opinion has existed as to the merits of the work accomplished and its methods of performance. But now that it has been completed we can look upon it with less personal feeling and deal with it as a whole. First, it must be looked at from the standpoint of a Democratic administration of public affairs, and in two cardinal points—that of economy and a full equivalent for the money expended and in a just return of labor for salaries paid—it stands out single and alone as one of the best managed and directed the country has ever witnessed. Saving in gross amount thousands upon thousands of dollars that are wrung from the people by indirect taxation, it has at the same time secured the most efficient services from its employés of any administration in twenty years. As the work has increased in volume, the responsibilities have become greater and more exacting and the conditions more severe and restrictive, in a great measure the result of foreign proscriptive legislation aimed at our export food-products. Still the cost of doing this work has been lessened, and it has been performed with increased efficiency and has enlarged in almost every direction the foreign markets for our surplus food-products. This is wholly democratic, and there can be no difference of opinion among all good citizens as to its wisdom and worth at this time, and of the good lessons taught thereby by our parental government. Every aspect of paternalism has been vigorously opposed; and this, too, is democratic, thereby encouraging and fostering among our people a feeling of self-reliance and the largest liberty in the principle of self-government. The cost of inspection of foods for foreign shipment has been strenuously advised to be placed upon those who profit by the foreign markets and the infamous seed-scandal been laid open to public light, which will in the near future so solidify public opinion against its perpetuation that it will be wiped off our statute books as a blot and scandal upon the fair name of our national government. While there is and has been a persistent disposition for Republican rule and power to claim all the honor and any benefits accruing from the establishment of a true civil service, it was left in this department to a Democratic official to enforce the spirit and intent of true civil service throughout the Department of Agriculture. Without fear or favor Secretary Morton has earnestly, conscientiously, and with steadfast devotion to duty as an executive officer overcome every obstacle and condition until he has established civil service, or the merit system, in every branch of the department, from the highest to the lowest official, and thus secured to the government the best service and the highest efficiency it has received for a score of years. He has made these offices secure from removal on political grounds, and he has not demanded political services for their retention. Adherence to party or services to State or local political bosses add no strength to a desired entry to public service; and while this may not be democratic teaching, may controvert democratic doctrine as taught by the founders of the Democratic party, let it not be gainsaid that all the more honor to his intergity for the enforcement of so wise a measure, which has brought so much good to all. In his final report to the President he has gone further in the advocacy of the system by calling attention to the inadequate payment of special services of a scientific character rendered the government and to the injustice done these employés when compared with the more than well-paid clerical force, whose positions and salaries have ever been sought for and considered as sinecures. Much more might be well said of the thorough and wise administration of this department in the interest of true reform and advancement for the veterinary profession; but sufficient has been alluded to, and a grateful appreciation of the changes in this department will long follow our outgoing Secretary as a contributor in no small measure to the welfare of our calling. While speeding the parting guest with the sincere thanks of a determined and aggressive profession, winning its way by sincere and devoted work, aided by such well-directed assistance as we have enjoyed at Secretary Morton's hands, we welcome the incoming Secretary, Prof. James Wilson, with the full appreciation of the grave responsibilities and trials before him, and when the evening of his administration shall arrive we trust we may be able to speak with as much praise and with the same feeling of appreciation for an advancement on his part of the good work of his predecessor.

THE to-be Secretary of Agriculture, Prof. James Wilson, of Ames, Iowa, Professor of Agriculture at Ames, proves to be an appointment generally acceptable to all interests involved. Thoroughly versed in agriculture from boyhood up, his value as an efficient instructor was recognized by the State Agricultural College in his election to the Chair of Agriculture, which he has efficiently filled and greatly promoted the growth and advancement of that institution. Friendly to and interested in its Veterinary Department, the profession is assured of a friend in this department of our government, and one who has kept himself familiar with the advancement of our profession and fully cognizant of its worth and usefulness. We shall look forward to the steady enlargement of this department of the Bureau of Agriculture, that the live-stock industry of the country may be advanced and increased in worth to our people in every wise and guarded direction.

WELL DONE, MONTANA!

ON other pages of this issue will be found two laws, one of which has passed, and the second will, in all probability. And when one reads them he will marvel at so great an achievement even in that hustling, up-to-date State. Many who had the pleasure of being with us at Buffalo will recall the presence of one of our older members whose face had not been seen in Association circles for several years, but when we recall his keen interest in all the proceedings at the "Queen City of the Lakes," we can say, with one accord, it was doubly good to have been there and to know now that from that convention there returned to Montana on the North our esteemed colleague, Dr. Knowles, imbued with the one strong thought that Montana should no longer bring up the rear guard. In the language of that hustling commonwealth, our colleague went up to Helena and camped on the battle-ground of legislative power, where he won for his profession, our cause, and the people of his State the powerful and valued influences of Senator Metzell, and two bills were prepared looking to a better inspection of food-products and safeguards for the veterinarians. Imbued with the necessities of this first act for a purer food-supply, realizing how closely linked this act must of necessity be with an educated and qualified veterinary profession, Senator Metzell sounded through the press of Montana, in vigorous and forceful language, the need of these legislative provisions, and when urging their adoption on the floor of the Senate he exhibited a fund of information on the subject of meat- and milk-inspection and a knowledge of the requirements of a good veterinarian that were refreshing to read. With energy and determination he pressed these measures so forcibly before his people that in a comparatively short period he secured the enactment of the pure-food law, and the other is in course of passage. We are glad and proud to have the privilege and honor of extending, on behalf of the veterinary profession of the whole United States, our sincere thanks and unmeasured appreciation to Senator Metzell for his earnest and successful efforts in our interest, and we look forward with confidence that, when the full value of these laws is realized by the people of Montana, they will find a still broader and higher plane of usefulness and power for Senator Metzell.

THE KEYSTONE STATE.

PENNSYLVANIA'S State Board of Health will have many measures before the Legislature at this session. This body has many needs, all of which are of public import and necessity. In no great State like the Keystone has such niggardliness in appropriations been accorded as has been doled out to this body. Limited powers and a narrow, short-sighted policy have prevailed in recognition of the needs of this board, and much good that should have inured to the people of this State has been denied to our citizens. With an efficient board, an earnest set of representative men, and a hard-working, faithful, intelligent secretary this should no longer be, and the members of the veterinary profession, in their close relations with sanitary science and police measures, should interest themselves in these proposed enactments and urge upon their representatives a larger appropriation, greater power, and the removal of dangerous and needless restrictions, which contribute much to retard the work of this board in the progress of better sanitary regulations, which are the evidences of advancement to a higher civilization.

BE UP AND DOING!

LEGISLATIVE efforts on every hand are awakening the people to new conditions and a fresh appreciation of the needs of the times; and there is something for each of us to do. There must be many minds and many hands to do the work that is needed; there must be a quickening of our zeal and a prompt entering upon the work of the hour. There is legislation at Washington to aid the army veterinarians. There is legislation in Maine to better guard the interests of veterinarians; other proposed methods to better direct State veterinary sanitary work. There is legislation in New Hampshire and in Connecticut to deal with both these subjects. There are needed legislative enactments in Massachusetts to eliminate features of the law regulating the Cattle Commission, in default of which there will be no further real progress in the Bay State. There are laws to be secured in New York; there are other proposed ones to defeat. In Pennsylvania the enlarging of the powers and means of the State Veterinary Sanitary Board and a better protection of our borders from the introduction of untested animals should be secured. Virginia seeks more power in State sanitary police measures. Louisiana looks forward to the same. North Carolina is eager to get in line for recognition of her professional representatives. New Jersey, Michigan, Minnesota, Wisconsin, Illinois, and Colorado are all seeking stronger safeguards for their animal industries and for recognition of those who have given time and money to prepare themselves for the profession. All this means much hard work; something for all to do in aiding every one of these efforts. Your voice in State Association meetings—your pen in the press or to your friends and acquaintances or through kindred organizations—is needed to aid this strong movement spreading over the land. So we appeal to you to be up and doing, and when the evening of 1897 shall have been reached there will be common cause for all to rejoice in the returning prosperity and bright future of our profession. SPEED THE GOOD WORK!

THREE MORE WITHIN THE FOLD.

SURELY the veterinary profession over the land has no disposition to look backward, though the times have not been auspicious and the readjustment of changed forces and conditions have come with peculiar force upon its devotees. But with that earnest confidence born of the realization that in unity there is power and strength, and that our future field of labor must be broadened and enhanced in worth to our people, they have taken fresh courage; and Minnesota, on the North, is followed by Tennessee and North Carolina, on the South, in rearing State associations which are destined to be of much import in these commonwealths. Des Moines and Buffalo, in their excellent meetings of the national organization, have proven strong incentives to the establishing of State and local organizations, and much good will be felt in their birth—much added power in their deeper interest in the parent organization. Let the good work go on; let Kentucky put on her association armor and Louisiana take up the chain and add her link. With every State association exhibiting renewed vigor and power, the future is full of promise; and may all who have realized the value of organization spread the good influence in all directions.

GO SLOW IN NEW YORK STATE.

THE proposed measure to create the office of State Veterinarian in the Empire State and to associate the same with the State Board of Health is a radical one, which needs the careful, earnest consideration of the entire veterinary profession before it is pushed to its passage. For many years the work of such an officer has been associated in nation and State, at home and abroad, with departments of agriculture, in whose interests primarily such officials were created; and it is well to consider whether it is wise, whether the time and occasion are upon us when there are sufficiently good reasons for its divorcement therefrom. The agricultural and animal industries have had more than their share of the burden in the past few years. Needless and fruitless agitation has gone on to further imperil their security and prosperity, and this at times has been unmindful of just and adequate protection and recompense for their losses and burdens, and to no one must they look for aid and assistance as much as to the veterinarian. To render assistance to them, and through them to the public, we must seek to obtain their confidence and co-operation, or our efforts will be only half successful and the results disappointing to all concerned. There are reasons why the association of this office with a State Board of Health would give it added power and usefulness; but do these outweigh the dangers that are likely to follow the widening of the gap between the producer and consumer of animal food-products?

FOR GOOD ROADS.

SENATOR BROWN'S proposed legislation for good roads in Pennsylvania means much to the veterinary profession. It will encourage more driving; it will enhance the value of horses; it will stimulate the breeding of a high class of roadsters; it will create a larger market for saddle horses. In fact, it has everything to commend it, and is the evidence of the highest type of advanced civilization. It therefore places a duty before every member of the profession to aid this movement through our Legislature, and our approval is only half performed until we have written our district representatives at Harrisburg in favor of this measure. These are times of labor, and you must be up and doing all the time; for every good and wise law that will add a measure of prosperity, of pleasure, of profit, and contribute to the well-being of the general public is ours to aid and support.

BE CONSIDERATE -SANITARY POLICE WORK WILL ONLY GROW AS WE THOUGHTFULLY DIRECT IT.

VETERINARY police and sanitation have been of exceedingly slow growth in this country In most of the countries of Europe there is a thoroughly organized corps of veterinarians engaged, in a civil capacity, in the suppression and extermination of communicable diseases of animals and the protection of the public health from diseases originating in animals. Their system is old; it is thoroughly established; its utility is generally recognized; it is, in most cases, liberally supported, and there is no question as to its general economic and sanitary importance. In most places its scope is being steadily enlarged. In the United States, on the other hand, work of this character has met with a multitude of embarrassments and obstacles, nearly all of which can be traced to the lack of appreciation of it upon the part of the public, which, in turn, is due to lack of information regarding it. The education of the public, or the arousing of public sentiment, is the first step toward all American reforms; but the education of the public is a slow process. It must be done carefully, conservatively, systematically, and when once accomplished the movement that has gained strength and position by virtue of it is established on such a firm foundation that it cannot be shaken. A small beginning in the work of veterinary sanitation and police has been made in some American States and cities. If this work is carried on carefully, economically, and successfully, other work of a similar character is sure to follow; it will increase as knowledge of it grows, until finally there will be a far-reaching system that will lead to the gradual suppression of many of the infectious diseases that afflict animals, the protection of the public health to a very great extent, the saving of innumerable dollars and many lives; all of which will make new openings for veterinarians and lead to a higher development of our profession than it has yet attained.

On the other hand, if the work that is now going on is done in a careless, bungling way; if, instead of public support, active antagonism is aroused; if the work is expensive and it is not made clear that the gain is in proportion to the cost; and, *above all*, if it appears that the work is done by the veterinarian for himself rather than for the public, our progress will end at this point. The veterinary profession will receive a blow that it cannot recover from for many years, and not only will the existing generation of veterinarians suffer, but the growth and importance of the veterinary schools will lag and diminish, and the public, the live-stock interests, the various commonwealths, and the nation will lose through not having this important work carried on in a proper manner.

The occasion of these thoughts is the apparent inclination on the part of some veterinarians in some of our States to regard veterinary sanitary work as a "good thing" that must be made to yield a maximum amount to them in direct monetary return; and those who have the management of this work are greatly harassed and hampered by the extravagant bills and the importunities for more money from some of those whom it is necessary to employ.

In most of the States where veterinarians are employed in public service the rate of compensation is fixed at five dollars per day; and when one considers the importance of doing this work in an economical manner, the fact that not only its development but its continuation, and in many cases its very existence, depend upon this point, and when one considers the secondary advantages that accrue to the veterinarian from doing it, beyond and above the mere money received for his labors, the allowance seems to be sufficiently generous for work of a routine character that is incidental to a general practice, and we can at this time and under these conditions have no sympathy with the clamor for a larger allowance.

Gentlemen, do all that you can to carry this work along economically, conservatively, and successfully. Do not regard the dollar so attentively that all consideration for the future is lost. This work must grow; the country needs it; hasten its growth, generously and willingly.

AN EXCELLENT APPOINTMENT.

GOVERNOR CLOUGH, of Minnesota, recently appointed Dr. M. H. Reynolds, of St. Paul, a member of the State Board of Health of the "Gopher State." This recognition of a veterinarian upon the State Board of Health of that State is certainly a step in the right direction and a very commendable one in every respect. Further, it is in keeping with the advanced action of the State of Minnesota and with the measure adopted by the city of St. Paul providing for an inspection of its milk-supply and an examination of the herds outside of the city, the milk products of which are offered for sale within the corporate limits. In the failure to reappoint Dr. Hewitt, long a member of the board, there can be no reflection cast upon the appointing power on the grounds of his failure to select one well equipped for the position. Dr. Reynolds is an earnest student, a graduate in human and comparative medicine, a skilled teacher, an advanced veterinarian, and one already selected by the State to take charge of a very responsible educational position in a State institution of learning. There can only be the greatest good to the largest number of people of the commonwealth through this recognition of Dr. Reynolds. The board's efficiency and its work will be broader and more far reaching, and its results more valuable in every way, not alone to that State, but to the whole country, as step by step it shall adopt measures for the better control and solution of the many questions involved in a better and more wholesome food-supply as well as the control of those diseases that are closely related to man and the lower animals.

We trust that the example set by Governor Clough will be followed in many other States by similar recognition of members of the veterinary profession, many of whom are particularly well equipped to fill positions of this kind.

THE New York State Board of Veterinary Medical Examiners deserves the thanks and approval of the veterinary profession in pushing to an issue the question of dehorning as a surgical operation coming within the provisions of the Act of the Empire State regulating the practice of the profession in that State. We have heard the argument advanced that the low prices received as remuneration for this work made it of little importance to the profession. This argument applies equally well to castration, ovariotomy, neurotomy, or any other everyday operation, and because it is done in a loose way or in a mechanical manner is no argument that it is not a surgical operation; and when so understood and performed it will receive a proper recompense.

NASHVILLE THE MECCA FOR 1897.

MUCH interest has centred in the choice of the Executive Committee of the U. S. V. M. A. in selecting one from the many places suggested for our pilgrimage in 1897. The keenest desire has been shown by the veterinarians of the South that the meeting should be held in Nashville, where for the first time our Association will gather on Southern soil. Many were the appeals and letters received by the members of the Executive Committee commending the rival cities, but none were so forcibly presented as those which emanated from the South.

The Centennial Exposition to be held in Nashville during the coming summer, and which will close in October, offered inducements of no little import to the members of the profession in cheaper fares; and the attraction of the exposition and the open doors of hospitality which will swing inward for 1897 for all who may journey to that city seemed to weigh with the Executive Committee, so that for first choice Nashville received ten votes of the twelve votes cast; the two additional ones were for Nashville as second choice. This convention will create a new era in the South, and its members can well journey to the "Athens of America for '97," and there, in sight of the "Acropolis," reared in all its ancient form and beauty, they can seriously deliberate over the many matters of peculiar interest to us as a profession and of profound interest to our country as a race of people, particularly in the line of sanitary questions that are now attracting the attention of the learned people of the entire earth.

In the consummation of this meeting in its fullest and most complete worth for the profession there will be a work for every member to do in contributing to its success. While the warmest and most open-hearted hospitality will no doubt be tendered us in that full measure for which the Southern people are famous, it must be looked forward to not alone as a pleasure in this direction, but that there is a great work to accomplish, and it must be done thoroughly and conscientiously, in order that it will leave its impress in the South toward creating there a higher appreciation of the veterinary profession and to broaden that field for the employment of a much larger number of our representatives. It must do there as it has done in other sections of our country—stimulate and increase local and State association interests and awaken the people to the needs of wise veterinary sanitary police measures; it must also impress upon them the fact that such measures can only emanate from well and thoroughly educated members of the profession, and that these can only come from institutions of learning where a rigid and high standard of education is maintained.

Let everyone enter upon this work with a determination to do well his part, and our watchword of "On to Nashville" for 1897 will be full of meaning and freighted with responsibility to be discharged with the utmost fidelity to the interest of one and all that the members of the profession have accepted in becoming its devotees.

NECROLOGY.

At New Bedford, Mass., on Sunday morning, January 3d, after an illness of two months, O. H. Flagg, M.D., V.S., quietly passed away. Born at Barre, Mass., February 28, 1823, he had nearly attained the age of seventy-four years. At the age of thirty he had entered upon the study of human medicine, taking his degree at a Cincinnati medical school; but, following the more natural bent of his inclinations, he entered the college of Dr. George H. Dadd, from which school in 1859 he was graduated and at once began practice as a veterinarian, which won for him the highest honors and esteem among the people with whom he lived and for whom he labored. He was a charter member of the United States Veterinary Medical Association, with which he retained his allegiance until his death. He was a member of the Massachusetts Veterinary Medical Association and was endeared to every member of the profession who was favored with his acquaintance.

J. D. Rutherford, M.D., V.S., Principal of the Detroit Veterinary College, died very suddenly on the evening of January 11th, of rheumatism of the heart. Dr. Rutherford was a graduate of Ontario Veterinary College, class of 1887; also of the Rush Medical College of Chicago. At the time of his death, though engrossed in the work of the college, he was pursuing the study of law. The doctor succeeded Dr. S. Brenton as the principal of the Veterinary Department at Detroit, and his death makes the second loss of its chief director in the past two years.

David L. Lancaster, a well-known veterinary surgeon of Shelbyville, Indiana, died last month, aged sixty years.

C. A. Turley, V.S., Brandon, Manitoba, died recently. He was a graduate of the Ontario Veterinary College, class of 1895.

Dr. Michael Gallagher, a registered non-graduate of Pittsburg, Pa., died in February at the age of forty-four years.

At Allentown, Pa., on February 15, 1897, Ellen S. Foelker, and on February 19, 1897, Rosa A. E. Foelker, daughters of John C. Foelker, V.S.

MARRIAGE.

January 27, 1897, at Rock Island, Canada, Erastus P. Ball, D.V.S., graduate of McGill College, class of 1890, to Miss Florence Caswell, of Stanstead, Canada.

THE *Jersey Bulletin* is printing weekly a series of letters on the value and dangers of feeding cotton-seed products. A writer, in the issue of February 10th, condemns it severely as a contributor to barrenness in cows and as a frequent cause of abortion.

LEGISLATION.

Connecticut. Representative Adrian Wadsworth, of Farmington, and G. E. Manchester, of Winchester, have been appointed a committee by the State Dairymen's Association to confer with the State Board of Health concerning the draft of a bill to be presented at the current session of the Legislature, requiring improved sanitation in stables and barns where milk-cows are kept. Some bill of this character will be urged upon the attention of the General Assembly. Mr. Wadsworth, of the committee, is a member of the present House and a director of the Dairymen's Association. He is a graduate of the Sheffield Scientific School at Yale. and is the Secretary and Treasurer of the Farmington Creamery, Mr. Manchester is also an active and influential farmer in his section of the State. The draft of the bill has not yet been made. It is expected that the State Board of Health will side materially with the Dairymen's Association in the plans that are to be proposed relative to the sanitation of stables and barns. The result of the movement has been to head off the tuberculosis advocates in the attempt that was to be made by them to secure the support of the Health Board. There are members of the State Health Board who are opposed to the course that has been pursued during the past two years in enforcing the tuberculosis laws. For this reason the coalition between the Board and the Dairymen's Association will be the more effective.

Bills have been introduced in the Senate and House repealing the Act of 1895, relating to tuberculosis in cattle. John I. Hutchinson, of Essex, introduced the measure in the House. Senators Brown and Mattoon are the backers of the repealing bill in the Senate.

New York. Some views and an important decision relating to dehorning. A decision of great interest to the veterinary medical profession was given by Mr. Justice Davy at a trial term of the Supreme Court, held at Bath, Steuben County, New York, on January 5, 1897. It was in the case of the County of Steuben against Wood. The prosecuting committee of the New York State Veterinary Society caused action to be brought against John Wood, pursuant to Chapter 860, of the Laws of 1895, for the illegal practising of veterinary medicine. The sole and only question involved at the trial was whether the dehorning of cattle was a surgical or non-surgical operation. It was contended on the part of the plaintiff that it was a surgical operation, and that the defendant was guilty of a violation of the statute and was liable to the penalty of fifty dollars for each day's practice. The defence claimed that it was a non-surgical operation, and that any unlicensed persons could perform the operation for hire without violating any statute. The State Veterinary Society employed Lewis Cass, Esq., of Albany, to prosecute the action. It was defended by the best legal talent in Steuben County. Upon the trial of the action Prof. James Law, of the New York State Veterinary College, and Dr. Wm. Henry Kelly, of Albany, Secretary of the State Board of Veterinary Medical Examiners, were called as witnesses for the plaintiff. Both of these eminent gentlemen gave a very lucid and clear description as to what constituted a surgical operation, and, although both were subjected to a very close and rigid cross-examination, the defence failed to shake or in any wise weaken the evidence given on direct examination. At the close of the trial the plaintiff's attorney requested the court to direct verdict for fifty dollars, being one full penalty, which was done. A stay of sixty days was given for the defendant within which to perfect the appeal to the Appellate Division.

This is the first decision under the law of 1895 upon this point. In fact, so far as we have been able to learn, it is the first decision of any court in the United States. This is a great victory for the profession.

Mr. Cass feels confident he will be able to sustain the decision of Judge Davy before the Appellate Division.

Maryland. Secretary Clement writes, in reply to interrogatory on the subject: Our examining board have not taken up the question of dehorning cattle by non-registered persons for two reasons: first, on account of the peculiar reading of our laws relative to the State outside of the city of Baltimore; second, because we consider it hardly a surgical operation, but a proceeding which can just as well be accomplished by one man as another, provided he possesses the proper apparatus.

Virginia. Our State Board does not consider dehorning as belonging to the veterinary profession; therefore takes no notice of it when performed by a layman.—*Dr. E. P. Niles.*

Ohio. Nothing in this Act shall be construed to prohibit any veterinary advice or service in cases of emergency if rendered by a person not entitled to practice under this Act; nor shall it apply to animal castration and dehorning of cattle.—*Dr. J. C. Meyer, Jr., Member of the Board.*

North Carolina. An Act which proposes to regulate the practice of veterinary medicine and surgery in North Carolina requires examination before the State Board of Veterinary Medical Examiners, consisting of five members elected by the North Carolina Veterinary Medical Association. It provides that the board shall meet at least once a year, at such place as the Association may decide upon. Two members of the board may grant a temporary certificate to practice, which shall be in force only until the next regular meeting of the board, but in no case shall such temporary certificate be granted to any person who has been an unsuccessful applicant for a certificate before the board. The fee is to be ten dollars before issuing a certificate and five dollars before issuing a temporary certificate. The board shall have authority to adopt such by-laws and regulations as may be necessary, and shall fill all vacancies in said board. Members of the board shall receive compensation for their services, not to exceed four dollars per day and travelling expenses, the same to be paid from fees in the hands of the secretary. The board shall have power to rescind any certificate granted by it, upon satisfactory proof that the person thus licensed has been guilty of grossly immoral conduct. All persons having practised veterinary medicine and surgery exclusively as a profession for five years previous to the passage of this Act shall be allowed to practise after making affidavit and registering their names on or before January 1, 1898. This Act does not prohibit any member of the medical profession from prescribing for domestic animals in cases of emergency and collecting a fee therefor, nor to prevent gratuitous services or any person from practising for the relief of any animal belonging to himself or herself. The Act does not apply to commissioned veterinary surgeons in the United States Army.

Illinois. A bill intended to regulate the practice of veterinary medicine and surgery makes it unlawful for any person to practise without having previously obtained a diploma from a college duly authorized to graduate students in veterinary medicine and surgery, or the person shall have been in continuous practice exclusively as a veterinary practitioner in that State for a period of ten years; those practising less than ten years must pass an examination before the State Veterinary Board. Said board to consist of five duly qualified practitioners, to be appointed by the Governor, with the advice and consent of the Senate, and to hold office for five years. Not more than two graduates of any one college, and no professor or instructor of any college, shall serve on this board. The board shall meet every six months in the cities of Chicago and Springfield, alternately; each member to receive five dollars per day and all necessary expenses while engaged in the duties of office; the same to be paid from fees received by the secretary. Said board shall examine all diplomas as to their genuineness, and an affidavit shall be made by the holder that he is the person mentioned therein; said affidavit being sufficient guarantee that it is genuine. The board shall examine non-graduates by written or oral examination, or both. An examination fee of five dollars is to be paid by the non-graduate presenting himself, the same to be returned in case of failure. The board shall grant license to practise, for which they shall receive a fee of five dollars, having the power to refuse the license to any applicant on the ground of his having been guilty of gross immorality or gross malpractice; but no license shall be revoked without citing the party charged before said board by notice in writing, and upon evidence taken by said board in his presence, and after he has had opportunity to disprove such charges. Said license must be recorded in the office of the clerk of the county, for which the holder shall pay the usual fee for making said record. For any failure, neglect, or refusal to register as above for a period of six months he shall forfeit his license, which cannot be restored except on the payment to said 'board of the sum of twenty-five dollars penalty. Any person is regarded as practising according to the meaning of this Act who shall publicly profess to be a veterinary surgeon or appends to his name any initials or title implying qualifications to practise, or who prescribes for or treats sick or injured domestic animals. Nothing in this Act prohibits veterinary students from prescribing under the supervision of a preceptor nor to prohibit gratuitous services. The fine for practising without a license shall not be less than twenty-five dollars nor more than one hundred dollars. Any person filing or attempting to file a diploma or a certificate of another shall be subject to such fine and imprisonment as is made and provided by the statutes of the State for the crime of forgery. One-half of the fines provided for shall be paid into the county treasury and the other half to the prosecutor.

A BILL FOR AN ACT TO PROVIDE FOR THE CREATION OF A VETERINARY EXAMINING BOARD FOR THE PROTECTION OF THE LIVE-STOCK INTERESTS OF THE STATE OF MONTANA.

Be it Enacted by the Legislative Assembly of the State of Montana:

That the Governor, with the advice and consent of the Senate, shall appoint five learned, skilled, and capable veterinary surgeons who shall have been residents of the State of Montana for not less than one year preceding their appointment, not more than two of whom shall be from the same county, and who shall have attended two courses of lectures and are graduates of accredited colleges of veterinary medicine or universities having a veterinary department recognized by the United States Veterinary Medical Association, who shall constitute the Board of Examiners for the purposes of this Act. The veterinarians so appointed shall hold their respective offices for seven years, providing that the term of office of those constituting any present board shall not be affected by the provisions of this Act; and the terms of their successors shall be so arranged as to succeed the present incumbents as their terms expire; and providing, also, that all vacancies occurring shall be likewise filled by appointment by the Governor, by and with the advice and consent of the Senate. Appointments made when the Senate is not in session shall take effect immediately and may be confirmed at the next ensuing session; provided, if the Governor cannot find within the State suitable members, or men that he regards as competent to fill the provisions of this Act, that the now existing Board of Human Medical Examiners, in conjunction with the State Veterinarian, shall examine such applicants as desire to practise veterinary medicine in this State until such time as the Governor can find and appoint a suitable veterinary examining board consisting of veterinarians alone.

The Board of Veterinary Examiners must, on the first Tuesday in January of each year, elect from among their number a president, a secretary, and a treasurer, and must have a seal. Three members of said board shall constitute a quorum. The president and secretary have the power to administer oaths in examination of applicants for certificates and witnesses called before the board in the transaction of business under the provisions of this Act. The Board of Examiners must hold meetings for examinations at the seat of government on the first Tuesdays of January and September of each year, and at such other times and at the same and other places as the board may determine. The board must keep a record of all proceedings thereof; also a register of all applicants for a certificate, with the age of the applicant, time spent in the study of medicine, and the name and location of all the institutions granting to such applicant degrees or certificates of lectures attended in medicine or surgery. Such register shall be *prima facie* evidence of all matters therein kept.

Every person hereafter wishing to practise veterinary medicine or surgery in any of the departments of this State shall apply to said board for a certificate so to do. Every person so applying shall present his diploma to the said Board of Examiners for verification as to its genuineness, and if the diploma is found genuine, and if issued by a veterinary medical school, or the veterinary department of a university legally organized and in good standing, whose teachers are graduates of legally organized schools of veterinary medicine and human medicine, which facts the said Board of Examiners shall determine, and if the person presenting and claiming said diploma be the person to whom the same was originally granted, at a time and place designated by the said board, or at a regular meeting of the said board, said applicant shall submit to an examination in the following branches, to wit: Comparative anatomy, physiology, chemistry, histology, pathology, materia medica, therapeutics, preventive medicine, practice of medicine, surgery, obstetrics, meat- and milk-inspection, hygiene, external form of the horse, zoötechnics, and such other branches as the Board of Medical Examiners may deem advisable, and present evidence of having attended three courses of lectures of at least six months each; but such evidence of having attended three courses of lectures shall not be required of applicants graduating prior to July 1, 1898. Said board shall cause such examinations to be both theoretic and practical and of sufficient thoroughness and severity to test the candidates' fitness to practise veterinary medicine and surgery and dentistry. When desired, such examinations may be conducted in the presence of the dean of any veterinary medical school, or the presidents of any veterinary or human medical society of this State. At the examination such board shall, if the candidate has been found qualified, grant a certificate to such candidate to practise medicine and surgery in the State of Montana, which said certificate can only be granted by the consent of not less than three members of the said board, and which said certificate shall be signed by the president and the secretary of said board and attested by the seal thereof; provided, however, that during the intervening period of the session of the board any person desiring to practise medicine in this State may present his or her diploma to the president of the board, who may issue a certificate good until the next regular meeting of the board; and provided, further, that all veterinary surgeons who hold certificates granted by the now existing Board of Medical Examiners shall be exempt from the provisions of this section.

The board may refuse to grant a certificate for unprofessional, dishonorable, or immoral conduct. Before a certificate can be refused for such a cause the board must serve in writing upon the applicant a copy of any charge or charges against him, and appoint a day for hearing, at which the applicant or any witnesses in his behalf may appear and give testimony in refutation of such charge or charges. In case the board, after hearing such charges, refuse a certificate to the applicant, the decision specifically stating the ground upon which refusal is made must be reduced to writing, and a copy thereof be delivered to the applicant upon demand of the applicant. Upon a like hearing the board may refuse a certificate to anyone who may publicly profess to cure or treat disease, injury, or deformity in such a manner as to deceive the public. The hearing provided for herein must take place within twenty days after the service of a copy of the charges upon the applicant, unless delayed by or further time is granted to the applicant, and the decision of the board must not be later than ten days after the hearing. If the decision is not rendered within the said period of ten days, the applicant is not subject to any penalties for practising without a certificate during the time that elapses before the decision is made. The board, with concurrence of three members thereof, may revoke a certificate for unprofessional, dishonorable, or immoral conduct. Before such revocation can take place a written complaint, specifically stating the charges against the person whose certificate is sought to be revoked, must be delivered to the board and a copy thereof served upon such person twenty days before the time fixed by the board for the hearing of such charges. If, after the hearing, the board revoke the certificate of such person, the ground upon which such revocation is made must be specifically stated by the board in writing and a copy thereof delivered on demand to the person whose certificate is revoked. In all cases of the refusal or revocation of a certificate to practise veterinary medicine by the State Board the person aggrieved thereby may appeal from the decision of the board to the district court of the county in which the refusal or revocation was made. The appeal is taken by the appellant serving notice of appeal upon any officer of the board within ten days after receiving from the board a copy of the decision and filing within the same time with the clerk of the proper district court a verified copy of the decision appealed from, together with a verified copy of such charges furnished by the board and the appellant. The appeal is conducted to a determination in all respects as an appeal from a decision from a board of county commissioners disallowing a claim. The district court must affirm or reverse the decision of the Board of Veterinary Medical Examiners. In case of a reversal a certified copy of the judgment is equivalent to a certificate permitting the applicant to practise veterinary medicine and surgery. An appeal may be taken from the judgment of the district court by either party to the supreme court within sixty days from the entry thereof, in like manner as in civil cases. In case of an appeal from a decision revoking a certificate the appellant may be permitted, in the discretion of the court, to practise during the pendency of the appeal. Every person obtaining a certificate from the board must, within sixty days from the date thereof, have the same recorded in the office of the county clerk where he resides. If he moves from one county to another to practise veterinary medicine or surgery, the certificate must immediately be recorded in the county to which he removes. The county clerk must indorse upon the certificate the date of record, and he is entitled to charge and receive his usual fee for such services, the fee to be paid by the applicant. Until the certificate be recorded, as provided by this section, the physician practising under it is subject to the penalties prescribed in the penal code for practising without a certificate.

This act shall not apply to owners of domestic animals treating their own animals or to owners castrating or spaying their own domestic animals, or to commissioned veterinary surgeons in the United States Army in the discharge of their official duties, or to physicians and surgeons in actual consultation from other States and Territories.

Any person practising veterinary medicine, dentistry, or surgery within this State contrary to the provisions of this act shall, for each violation of the provisions of this act, be guilty of a misdemeanor, and upon conviction shall be fined not more than five hundred dollars nor less than one hundred dollars, or be imprisoned in the county jail for not more than ninety days nor less than thirty days, or by both said fine and imprisonment, as the court may determine.

Any person shall be regarded as practising within the meaning of this act who shall append the letters "D.V.S.," "D.V.M.," "V.S.," "Veterinary Dentist," or any title claiming to be what he is not, or who shall publicly profess to be a veterinary surgeon or physician or dentist, or who shall recommend, prescribe, or direct for the use of any animal, any drug, medicine, appliance, apparatus, or other agency, whether material or not material, for the cure, relief, or palliation of any ailment or disease of whatsoever character, or for the cure or relief of any wound, fracture, or bodily injury or other deformity, after having received, or with the intent of receiving therefor, either directly or indirectly, any bonus, gift, or compensation.

Candidates for examination shall pay in advance to the Secretary of the Board of Medical Examiners a fee of fifteen dollars, which shall defray the entire expenses of the said candidate for examination before the aforesaid Board of Examiners. Anyone failing to pass the required examination shall be entitled to a second examination within six months without fee; and the money so received shall be turned over to the State Treasurer, to be deposited by him in the "Medical Board Fund," as hereinafter provided. Each member of the board shall be entitled to the sum of five dollars per day and actual mileage while in the discharge of his official duties; provided there shall be enough money collected from the candidates examined to pay such expenses and mileage. The entire expenses of said Veterinary Medical Examining Board shall only be paid out of funds paid into the State treasury by candidates examined.

The board must report annually on the first Monday in January to the Governor, which report must show all the transactions of the board, giving the number of the applications received and from whom received, the number of certificates granted and revoked, and the names of those receiving certificates, and those rejected, giving the reasons therefor, the amount of money received, the expense of the office and mileage paid, and by whom received, and the amount of money remaining in the said fund.

The veterinarians now practising within this State who have been practising within the limits of the State for a period of three years or over, who are graduates in good standing of veterinary colleges or veterinary departments of recognized universities, shall only be compelled to pass a practical examination in the branches herein mentioned.

This act shall be in force and effect on and after its passage and approval by the Governor.

A Bill for An Act Providing for the Appointment of a Meat-inspector in Cities having Ten Thousand Inhabitants or over within the State of Montana, and Prescribing the Duties and Powers of such Inspector, and to Regulate the Sale of Stock, Milk, and Meat for the Purposes of Food, and Prescribing Penalties for the Violation of the Provisions of this Act.

Be it Enacted by the Legislative Assembly of the State of Montana:

Section 1. The office of meat-inspector is hereby created in cities having a population of ten thousand inhabitants or over within the State of Montana; and immediately after taking effect of this act such cities shall appoint a meat-inspector or inspectors, whose compensation shall be borne by said cities, and shall be such as shall secure the services of some competent and qualified person, who shall take an oath of office to faithfully perform the duties of his office and to execute an official bond to the said city in the sum of five thousand dollars. No person shall be appointed a meat-inspector unless he is a graduate in good standing from some regular and reputable veterinary or medical college, admitted to practise in Montana, and before that appointment he shall be required to exhibit his diploma as such graduate.

SEC. 2. It shall be the duty of the city council of all cities having a population required by this act to designate some place or places in or adjacent to the city where the cattle, sheep, or swine intended for meat-slaughter, sale, and consumption for food in said city shall be brought for inspection on the hoof, where the meat of any said animals may be brought for inspection, which inspection shall be made without any unreasonable delay; and no fee or charge shall be made against or demanded of the owner or person who shall present any such animal or animals or meat for such inspection, but the same shall be inspected free of any expense whatever for or on account of the services of such inspector. And it is hereby made the duty of such inspectors to keep a correct record in a suitable and substantial book provided for that purpose, in which he shall record the names, places of residence, post-office address of the owner or owners of all animals presented for inspection, together with the brands and marks and a full description thereof, and the owner or owners of all meat which shall be presented for inspection, and also the names, places of residence, and post-office address of the persons from whom the same were purchased by the person or persons who may present the same for inspection.

SUBDIVISION 2. The rules, regulations, and methods of inspection adopted by the Bureau of Animal Industry, conducted by the United States Government, shall be taken as the standard of meat-inspection, and shall be followed as closely as may be practical by the meat-inspectors appointed by said cities.

SEC. 3. First. All meat intended to be offered for sale and consumption for food, and all cattle, sheep, and swine intended for immediate slaughter, sale, and consumption for food in cities having the population required by this act, shall be submitted to the meat-inspector on the day immediately preceding the day on which the same shall be slaughtered, and shall be taken to such place or places as shall be provided and designated under the provisions of Section 2 of this act, for such inspection.

Second. The carcasses of all animals so inspected on the hoof and slaughtered shall be inspected before the same shall be exposed or offered for sale, and such carcasses, and also all meats of any of the animals mentioned in this act, where the animals shall not have been presented for inspection on hoof before being slaughtered, shall be inspected before being offered or exposed for sale, and such carcass or carcasses or meat as shall be found upon such inspection and examination to be wholesome and fit for food shall be marked by the inspector with a tag similar in form and character to that used by the Government of the United States in the Bureau of Animal Industry, which tag shall be adopted and designated by the city council of said cities as the city stamp or certificate for the designation of wholesome and healthy meats;

Provided: That nothing herein contained shall be so construed as to prevent any person from slaughtering without inspection any healthy animal, the meat of which is intended for his own use or that of his family and household.

SEC. 4. It shall be the duty of the inspector to make inspection of the meats, carcasses, and animals mentioned in this act which may be presented for inspection at the place or places designated by the city council and keep the record aforesaid in the manner and form herein provided, which inspections shall be made by him as soon as possible and without unreasonable or unnecessary delay; and he shall attach to all meats so inspected and examined and found healthy and wholesome and fit for food a tag indicating that fact.

SEC. 5. The meat-inspectors appointed by said cities shall have the right to condemn any meat, carcass or carcasses, or parts thereof, of all cattle, sheep, or swine, or any other articles of food which they may find after examination to be unfit for food, and shall order the owner to destroy the same in such manner as may be acceptable to said inspector.

SEC. 6. It shall be unlawful to sell or offer for sale, buy or offer to buy, within the limits of said city, for the purpose of food, any calf, or the carcass or part of carcass of any calf, under the age of thirty days, or any cow, or the carcass or part of carcass of any cow, that have calves inside with hair on; and it shall be the duty of such inspector to condemn such cows and calves, and the carcasses of such cows and calves, at the time the same are inspected, and cause the same to be destroyed as aforesaid.

SEC. 7. Any person or persons, company or corporations, who shall sell or offer for sale, buy or offer to buy within the limits of said city, any carcass or carcasses or portion thereof, of any cattle, sheep, or swine, which have not been inspected or tagged as herein required or accepted as herein stated, or shall violate any of the provisions of this act, shall be guilty of a misdemeanor, and upon conviction thereof be punished by a fine not exceeding two hundred ($200) dollars.

SEC. 8. Provided: That nothing in this act or any paragraph thereof shall be construed to interfere with the offering for sale of any meats bearing a stamp or tag indicating that the same has been inspected by the United States Government or some county municipality where the proper sanitary meat-inspection, as required by this act, has been complied with.

SEC. 9. Said meat-inspector shall also be ex-officio inspector of milk, and as such it shall be the duty of said meat- and milk-inspector to inspect each dairy supplying milk to such city not less than once in each month of the calendar year. Each dairy shall have a certificate of health from said inspector for each cow from which the public is supplied with milk.

SEC. 10. It shall be unlawful for any dairyman to feed any unwholesome food of whatsoever character, and for each offence shall be fined within the penalty provided by this act. Each dairyman supplying milk to the public must have for each cow a certificate of having had the tuberculin-test applied by said inspector, stating that said cow is free from tuberculosis or consumption or any infectious or contagious disease whatsoever. Any dairyman having in his own family a case of diphtheria or scarlet fever *or any infectious* disease that may or might contaminate his milk is prohibited by this act from selling milk to the public for such a period as the disease exists in his or her family, and for twenty (20) days after said disease has subsided, and the inspector has given certificates that the premises have been thoroughly disinfected.

SEC. 11. All milk supplied by the public dairies shall contain not less than three per cent. (3 per cent.) of butter fats, and shall come up to a normal specific gravity test for milk.

SEC. 12. When, in the belief of the inspector, proper cleanliness of the utensils, buckets, pans, and other articles used about accumulating and in the marketing of milk are not up to the standard, it shall be the inspector's duty to destroy such milk and prohibit the said dealers from selling milk until such times as proper cleanliness and precaution are used in its handling.

SEC. 13. Dairymen in such dairies as supply milk to said cities must keep their barns or stables free from filth or dirt accumulating within or about their stables, that are likely to generate dirt, or filth, or disease-producing germs that can be carried within the milk.

SEC. 14. It shall be the duty of said inspector to stop at any time he may deem fit a dairy wagon or any vehicle containing milk that is intended for public consumption, and there and then take cognizance of any irregularity of whatsoever character in the milk or its methods of handling or distribution; ascertain if it is not up to the regular standard or that recognized standard to which milk should come, and if he finds said milk deficient in any of its nutritive qualities or sufficiently uncleanly to jeopardize the health of the people by whom it is consumed, he shall there and then condemn such milk, and such dairyman or milkman or other person whose product has been condemned shall be prohibited from selling any milk until he shall have received his certificate from said inspector permitting him to do so.

AMENDMENT TO SECTION 14. Provided: That such inspector shall, if requested by such dairyman, take from the same can of milk from which he shall have taken any quantity of milk, for the purpose of testing the same, at least one pint of milk and place the same in a bottle and seal and mark the same in such manner as to identify the same, and deliver the same to such dairyman, who may have the same analyzed and tested by any person competent to test and analyze the same, in order that such dairyman may ascertain the correctness of the inspector's analysis of such milk.

SEC. 15. Any citizen of the State of Montana to whose knowledge or observation comes the fact that any dairyman is supplying milk from diseased cattle or cattle fed on manure and refuse of a stable or other improper feed, it shall be his duty to notify said inspector, who shall at once visit said dairy, and if he find complaint to be true, it shall be his duty to at once prohibit the further selling of the product of said dairy and at once file an information against the said dealer in the nearest court.

SEC. 16. This act shall apply to all products of the dairy where sold in this State or any municipality to which the district covered by the inspector belongs.

SEC. 17. It shall be unlawful to adulterate milk in any manner whatsoever by drugs, coloring-matter, or any extraneous substance which, in the judgment of the inspector, would be detrimental to public health. Any method of handling milk intended for the public likely to produce unwholesome changes in the milk or disease to the consumers shall be prohibited from exposure for sale, and a violation of this section shall be punished as is above mentioned within the meaning of this act. The use of any drug or any unnatural method whatsoever of preservation or changing of milk shall be punished within the provisions of this act.

SEC. 18. Said meat- and milk-inspector shall perform such other duties in inspecting articles of food as the city council may require; provided that such additional duties shall not interfere with the prompt and proper discharge of the duties of meat- and milk-inspector as required and specified in this act.

SEC. 19. Said meat- and milk-inspectors shall have the same power as is now conferred on sheriffs, constables, and other police officers to arrest any person or persons whom said meat- and milk-inspectors may have reason to believe guilty of violating any of the provisions of this act.

SEC. 20. Any person or persons who shall forge, counterfeit, or knowingly or wrongfully utter, deface, or destroy, or lose any of the marks, stamps, or other devices which may be adopted by said cities as herein required for the purpose of designating wholesome or healthy meats or milk, or sell or attempt to sell any meats or milk which may have been condemned by the said meat- and milk-inspectors, shall be deemed guilty of a misdemeanor within the meaning of this act, and upon conviction thereof shall be punished by a fine not exceeding three hundred dollars, or by imprisonment not exceeding six months, or by both such fine and imprisonment, in the discretion of the court.

SEC. 21. Any city in the State of Montana having a population of less than ten thousand inhabitants shall have the option of adopting the sanitary provisions of this act.

SEC. 22. This act shall take effect and be in force from and after the first day of July, 1897.

SEC. 23. All acts and parts of acts in conflict herewith are hereby repealed.

CORRESPONDENCE.

EDITORS JOURNAL OF COMPARATIVE MEDICINE, ETC.

DEAR SIRS: The *National Stockman and Farmer*, an agricultural paper published in Pittsburg, Buffalo, and Chicago, is a journal of large circulation and influence, and most of its articles are written by experienced, competent men, whose opinions can safely be regarded as sound. But for some unknown reason it has placed the management of its veterinary department in the hands of a man who has no standing in the veterinary profession and whose views display not only much ignorance, but such wilful intention to mislead that attention should be called to the fact.

In the issue of January 7th there is an article that purports to be a reply to a number of questions that have been submitted to

"V. S.," and all of them relating to the subject of bovine tuberculosis, and especially the New York situation in relation to this question. We do not desire to interfere in local issues, such as the questions that bear on the work of the Tuberculosis Commission of the New York State Board of Health—the points brought up in relation to that matter can be ignored—but certain general statements and announced facts regarding the general subject of tuberculosis of cattle are so absolutely false as to require authoritative contradiction.

Every new question must of necessity receive general discussion and much opposition before the true facts are generally understood, and this seems to apply with greater force to public-health questions than those of any class, and especially when the interests of public health and property rights conflict. In the discussion of tuberculosis of cattle that has gone on so actively in the agricultural press and at meetings of farmers during the last few years the conservative members of our profession who have been called upon to make plain statements of clearly established facts bearing on this subject have met with extreme and violent opposition from those who feared that a needless scare was being aroused for the benefit of place-hunters; but in every case where tuberculosis has appeared in the herd of a farmer and he has made a careful study of the demonstrated facts in relation to the disease, has considered its cause, its dangers to other cattle and the health of the consumers of dairy-products, the means that have been employed to combat it, and the value of which have been proven by numerous practical tests, conducted on a large scale, but one conclusion has, so far as the large observations of the writer goes, been reached. The fact that stock-owners *who have had practical experience with this disease* have so generally reached the same conclusions regarding it, should have great weight with those who have not had an opportunity to make a personal study of it, and who are inclined to follow misleading, malicious writings and opinions, such as those under consideration.

It is stated in this writing, for instance, that a vigorous quarantine practised by the farmer himself will do more toward heading off the diseases of a contagious nature than all the health boards in the whole State. It is quite true that unless farmers are careful and wish to have tuberculosis exterminated among their cattle it is more difficult to effect permanent good results than when the owner of the cattle co-operates with the authorities. But, nevertheless, the inefficiency of the method advised, which consists in removing from the herd a cow that has well-marked tuberculosis and has been coughing up and distributing the germs of consumption for a long time, is so evident that contradiction is entirely uncalled for.

Reference is made to "tubercular disease" of other animals, "from the house-cat up to the family horse," evidently for the purpose of creating the impression that tuberculosis is so common among animals other than cattle that the restriction of the disease in herds would amount to but little. It might be interesting to "V. S." to know that only six cases of tuberculosis in horses have been recorded in the United States, and that no cases of tuberculosis in cats in the United States are known, with the exception of animals inoculated artificially. The statement is also made that experiments have shown that under proper sanitary conditions animals may mingle with those that are diseased and not contract the disease. As a general statement this is false. It is undoubtedly true that some cattle may mingle with tuberculous associates and not contract the disease. It is also true that some people may mingle with cholera, smallpox, and yellow-fever patients and not contract their disease, but this does not in the least vitiate the strength of the very numerous observations that have been made and show that tuberculosis is *frequently* contracted by well-fed animals from their associates when the sanitary conditions are excellent. "V. S.'s" statement in reference to the danger of the transmission of tuberculosis from cattle to people through milk is exceedingly weak, but nevertheless it is so plausible as to create the impression in the mind of the uninformed reader that his contention is fully proven. He states that there is less tuberculosis among people now than formerly, notwithstanding the fact that milk is much more freely used. When attention is called to the advances that have been made in the knowledge of tuberculosis during the last few years, and the extreme measures that are taken by physicians and boards of health to restrict its spread by way of education and advice to consumptives and their families, it is strange that the disease is not less prevalent than it is.

If "V. S." could show that the general sanitary conditions in houses are no better now than twenty years ago, and that no more precautions are taken by consumptives to destroy their infectious discharges, and by their families to avoid infection, his argument would indeed be a powerful one in support of his ridiculous opinion. When it is known and has been proven by frequent experiments that tuberculosis can be carried from a tuberculous cow to calves, swine, and other experimental animals (even to such a comparatively immune animal as the horse, according to the observations of Bang), by the use of milk, and when it is known that a large percentage of children die of intestinal tuberculosis, which has anatomically about the same characteristics as are found in the experimental animals fed upon infectious milk, and when all sources of infection for the children are excluded as thoroughly as possible and nothing but milk from a tuberculous cow remains, a fair-minded man cannot doubt that many children are infected from this source. The statement that there is less tuberculosis among cattle now than formerly is absolutely false and contrary to all published opinions that are based on actual observation, and indisputable figures in many cases show that the disease is progressing steadily, excepting where active measures are used to restrict its progress. This is true of every portion of the United States and of European countries. The statement that all human and animal life would long since have been banished from the earth if tuberculosis were a highly contagious disease displays such ignorance that it is surprising that a reputable paper would publish it. Is not rinderpest a highly contagious disease, and do not contagious pleuro-pneumonia, foot-and-mouth disease, glanders, smallpox, cholera, yellow-fever, and diphtheria belong to this category, and do not animals and people still live?

The statement is made that there is no danger whatever of there being an outbreak of tuberculosis among the herds of cows or other animals in any State of the Union, and this in the face of the fact that tuberculosis prevails so extensively in some districts that from 10 to 25 per cent. of all the cows in dairies are involved, and in some herds nearly all of the cattle are tuberculous, while the general percentage of the tuberculous cattle throughout the dairy States cannot fall below 5 or 6, but still "There is no danger whatever that there will be an outbreak of tuberculosis among cattle in any State in the Union!"

Complimentary reference is made to the information that farmers have received on caring for their cattle, from the State Experiment Stations; but if "V. S." will merely refer to the publications from the Experiment Stations in Maine, Vermont, Massachustetts, New York, Pennsylvania, Indiana, Virginia, Michigan, Iowa, Utah, Arkansas, Alabama, and others, he will find careful treatises upon tuberculosis and the means to be employed in preventing it, and, strange as it may seem to "V. S.," the measures recommended by these various Experiment Stations are those that are recommended and enforced by State authorities wherever active measures are in operation. It is true, as "V. S." says, that there is no class of men who are as much frightened in regard to any disease that may attack the herd as the farmer himself; as a natural result of this, and the fact that tuberculosis is a dangerous disease that prevails extensively, there is great necessity that it shall be restricted in every way possible by the aid of the State.

It is stated in this remarkable effusion that in most cities to which milk is shipped milk-inspection is made by the different companies that handle the milk from the herds from which it comes, so that there is practically no danger to be apprehended by the city consumer that he will not get wholesome milk. The reverse of this is true, and no statement could be further from the mark. The milk coming from inspected herds constitutes such an exceedingly small percentage of the total supply of every large city, with the exception of St. Paul, Minnesota, that it is scarcely to be considered. Some of the herds in southern New York and northern Pennsylvania that supply large quantities of milk for New York City and some for Philadelphia are subjected to a so-called inspection at long intervals that amounts to nothing at all, and there is no such thing as a general dairy inspection made by competent men in operation in any of the Eastern, Southern, or Western States, with the exception of Minnesota.

It is very easy to say that tuberculosis is discussed and that some scientific men take an interest in the solutions of the intricate questions involved for the purpose of providing positions for "a great surplus of mighty poor doctors, lawyers, and half-educated dudes, who by reason of having friends who have a political pull are seeking to have a place provided for them." It is as fair to say that any other work is discussed or carried on for the same purpose. Are manufacturing establishments or railroads conducted for the primary purpose of giving men employment, and do all kinds of private and public work come within this category? Veterinarians as a class are as honest as any other class.

It has been shown that tuberculosis is a widespread disease among cattle; that it is a contagious disease, is progressively spreading and involving more cattle; and that it can be conveyed to other animals by feeding them upon the products of tuberculous cattle; and it is so highly probable that people can contract tuberculosis in this way that the highest medical authorities reckon tuberculous milk among the immediate causes of tuberculosis that should be guarded against in every possible way. In the face of all these well-demonstrated and generally accepted facts, how can an agricultural paper that has the interest of the farmers at heart publish and apparently approve of such infantile twaddle as the article of "V. S." printed in the *National Stockman and Farmer*, p. 11, of the edition of January 7, 1897? A. B. C.

CONTROL WORK.

Ohio. The *Breeders' Gazette* quotes two of Ohio's representatives in the medico-sanitary world as follows: At the last meeting of the Ohio Agriculturists Dr. N. S. Kinsman, of the State Cattle Commission and also of the Columbus Board of Health, had a paper on "Tuberculosis." He claimed that not only the milk but the meat of animals affected with tuberculosis is unfit for food; that the disease is more to be dreaded than cholera, diphtheria, and typhoid fever combined. He advocated a State commission for testing all milch-cows with tuberculin and the slaughter of all animals that show reaction, and meat-inspection and compulsory slaughter at abattoirs centrally located. Dr. D. S. White, veterinarian of the State University, followed, and showed that the danger from the use of milk and meat is not so great as claimed by some. He held that tuberculin is not reliable. It has value, but not sufficient to warrant the wholesale slaughter and waste its advocates encouraged. The fact that of the calves of 75,000 cows tested not one calf showed tuberculosis is enough to show that there is little danger of milk inducing the disease.

Indiana. Dr. W. W. Hamilton, of the State Board of Agriculture, recommends the abolishment of the Live-stock Sanitary Commission. This suggestion should receive the prompt attention of the people of Indiana, for it would be much more honorable to cut its head off at once than to allow the commission to die a slow death of starvation for want of money to work with.

Maine. The Maine Cattle Commission formerly maintained that tuberculosis did not exist in that State. Recent experience has demonstrated that the disease is present in some herds. It is probable, however, that it is far less prevalent in this State than in southern New England, and it will be a much easier matter to deal with it. The Cattle Commission has for years endeavored to keep diseased cattle out of the State, and with much success. The whole matter will receive attention in the Legislature.—*New England Homestead.*

Michigan has been a great sufferer the past year from liver-fluke, hydatids in the brain, tapeworm, and stomach-worms, owing to the wet condition of much of the pasture-land. More care in using these lands in wet seasons will better control the severe losses incidental to these diseased conditions until more light is shed upon the means of destroying parasites within and without the animal body.

Texas. About 3500 sheep admitted at El Paso from Mexico were ordered back, on account of the presence of scab, by an inspector of the Bureau of Animal Industry. Owing to the duty involved some indisposition was shown to returning them, and their slaughter was ordered. Lawsuits are likely to follow. About 3 per cent. were said to be affected.

Pennsylvania. Thirty head of tubercular cattle were recently killed at the Schuylkill County Almshouse. Nineteen thoroughbred Holstein-Friesians were destroyed in Berks County.

National. In a recent order drawing the cattle quarantine-line, to take effect on February 15th and be operative until November 15th, the Secretary of Agriculture announces that a contagious and infectious disease, known as splenetic or Southern fever, exists among cattle in California, Indian Territory, Oklahoma, Texas, Arkansas, Louisiana, and all the Southern States east of the Mississippi River and south of Kentucky, West Virginia, and Maryland. This quarantine-line has since been modified in Texas, Oklahoma, Arkansas, Virginia, and North Carolina to conform to quarantine-lines established by those States; and should other States now under the ban adopt a new line and regulations by legislative enactment to the satisfaction of the department, special orders will be issued accordingly. During the period specified in the regulations no cattle can be transported from the area south of the Federal quarantine-line to the north, east, or west of that line except by rail for immediate slaughter. Wherever cattle from the quarantined district are fed or watered in transit, no other cattle must be admitted, and the cars that carried the infected cattle and pens where they are temporarily detained must be cleansed and disinfected. Under the regulations Mexican cattle are admitted to remain below the Federal quarantine-line, and can be transported across it for immediate slaughter or upon a special permit from the inspectors of the Bureau of Animal Industry. The Agricultural Department has also issued notice that cattle infested with the Southern cattle-tick disseminate the Texas fever, and will, therefore, be considered as infectious cattle and be subject to the rules and regulations governing the movement of Southern cattle.—*Breeders' Gazette*, February 10, 1897.

SOCIETY PROCEEDINGS.

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

THE annual meeting was held in the City Hall at Madison, February 5, 1897. Meeting called to order by the President, Dr. Leech, at 2 P.M. Roll-call: Drs. Arpke, B. L. Clark, W. G. Clark, Hartwig, Kuoni, Leech, Laws, Ormond, E. D. Roberts, Roub, and L. A. Wright present. Dr. A. H. Wright, of Lake Mills, was also present.

Minutes of last meeting read and approved. The Secretary's report was read and accepted. The Treasurer's report was read and accepted. Dr. Leech then gave his annual address, which was very interesting and instructive, and contained a great deal of good advice to the practitioner. On motion, a vote of thanks was tendered Dr. Leech for his able address.

The following addition to the code of ethics was discussed, and, on motion, adopted: "It shall be deemed a violation of the code of ethics for any member of this Society to contract with or through the officers of any live-stock insurance company for the professional treatment of the members' stock so insured, but this rule shall not prevent any member from becoming the examiner of risks and to act in the capacity of an expert for the same."

The application of Dr. S. S. Snyder, of Cedarburg, was then presented for membership. It was referred to the Board of Censors, while the Society took a short recess. The Censors reporting favorably, it was moved and seconded that Dr. Snyder be elected to membership; carried.

Dr. Leech, as Chairman of the Committee on Legislation, reported that a bill to regulate the practice of veterinary medicine and surgery had been drafted and was ready for presentation to the Legislature, and gave the important parts of the same. The bill was discussed by Roberts, Hartwig, Ormond, Clark, and Wright. On motion, the report of the committee was accepted. It was moved and seconded that the Secretary send each member a copy of the bill when printed; carried.

The Secretary read a letter from Dr. Salmon requesting a contribution to the Pasteur Memorial Fund. On motion, the Secretary was instructed to send five dollars.

The Secretary reported correspondence in regard to the army veterinary bill. On motion, further correspondence in regard to army veterinary legislation was left to the Secretary.

Dr. Oberst being absent on account of sickness, the Secretary read his paper on "Tuberculosis."

On motion, the Society adjourned to meet at 7 P.M.

EVENING SESSION.

On motion, the regular order of business was dispensed with, and the Society proceeded to the election of officers. The following gentlemen were elected for the ensuing year: President, Dr. L. A. Wright, Columbus; Vice-President, Dr. J. F. Roub, Monroe; Secretary, Dr. W. G. Clark, Beaver Dam; Treasurer, Dr. J. P. Laws, Madison; Censors, Drs. A. H. Hartwig, Watertown; B. L. Clark, Monticello; and E. H. Newton, Waupun.

The reading of papers was then taken up. Dr. B. L. Clark read an interesting and carefully prepared paper on "Laminitis." Discussed by Drs. Ormond, Hartwig, Wright, Roberts, and Roub.

Dr. Arpke read a paper on "Reflex Irritation," citing a number of cases. It was very interesting, and brought out plainly the necessity of a careful examination in order to arrive at a correct conclusion as to the causes of disease in many cases. Discussed by Drs. Roberts, Wright, and Hartwig.

Dr. J. F. Roub reported a case of "Lipoma causing Death." The case was diagnosed at first as enteritis. Post-mortem revealed a lipomatous tumor on the posterior aorta. Discussed by Drs. Ormond, Wright, and Laws.

Dr. J. P. Laws reported several interesting cases that had occurred in his practice. Discussed by Drs. Hartwig and Roberts.

On motion, it was decided to hold the semi-annual meeting in Milwaukee, subject to the call of the Secretary.

On motion, a vote of thanks was tendered the essayists.

Adjournment. W. G. CLARK, M.D.C.,
Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE regular monthly meeting of this Association was called to order at 8.45 P.M., February 3d, at its rooms in the Academy of Medicine, with the President, Dr. Huidekoper, in the chair.

The following members responded to roll-call: Drs. Bretherton, Bell, C. C. Cattanach, J. S. Cattanach, Delaney, Ellis, Farley, Gill, Huidekoper, Hanson, Jackson, Loomis, Lamkin, Machan, MacKellar, Miller, Neher, and O'Shea. (18.)

Dr. Gill, Chairman of the Board of Censors, reported that the committee recommended to the Association that the action previously taken in the Glover case stand. The committee reported favorably on the name of Dr. M. J. Murphy, Jr., who had applied for membership in the Association in regular form. The committee also reported favorably on the recommendation for honorary membership of the name of Prof. A. Liautard, by members O'Shea, Robertson, and Hanson. It was then regularly moved and seconded that the report be acted upon in section; carried.

Section 1, Glover Case. Moved and seconded that the report be accepted; carried. Section 2, application of Dr. Murphy for membership. Moved and seconded that the report be accepted; carried. Section 3, recommendation of Prof. Liautard for honorary membership. The chair, after appointing a chairman *pro tem.*, offered the following protest against the admission of Prof. Liautard to honorary membership: "Mr. Chairman: It is with extreme regret that I cannot express my personal feeling of friendship for Dr. Liautard by seconding his proposal for honorary membership, but am forced to protest against it. This I must do as a matter of principle, upon the same grounds that I once prevented the election of Prof. James Law, of Cornell, as an honorary member of the U. S. V. M. A. As a leader of the profession, and on account of Prof. Liautard's long eminent standing in it, he should have been a leader in our Association; on the contrary, when we were struggling for existence he saw fit to resign, and the wording of his resignation was a grave reflection upon the Association. Now we have struggled and made a success of the Association, and I move that the proposition for honorary membership be not accepted." Seconded by Dr. Gill, who stated that he did not believe Dr. Liautard, if he knew it, would have permitted the application to haye been made; carried.

Dr. Neher reported a case of "Swelling" of the face, with inflammation in the buccal cavity, followed by sloughing to the extent of exposing a portion of the supermaxillary bone and a portion of the palatine artery, and asked what might be the cause; he attributed it to "purpura." An extremely interesting discussion followed as to the etiology, etc., which was participated in by Drs. C. C. Cattanach, Miller, Farley, J. S. Cattanach, Hanson, and others. Prof. Bell expressed his belief that it was of traumatic origin, citing a case in which a similar result was brought about by a piece of hard wood becoming lodged crosswise between the third molars on either side. President Huidekoper believed it to be purpura, and gave a very interesting little "talk" in relation to it and upon the minute anatomy of the parts.

Dr. O'Shea, Chairman of the Judiciary Committee, called the attention of the meeting to Assembly Bill No. 231, introduced by Mr. Hughes, in relation to the appointment of a State Veterinarian as a member of the State Board of Health. Moved by Dr. Hanson that it be the sense of the meeting to do all they can to oppose the bill; seconded; carried.

Assembly Bills Nos. 25 and 137 were also mentioned, which, of course, had already been opposed by most of the members present. The committee again promised to take action in reference to the jury bill. Moved and seconded that the proper means be taken to have Mr. Mulvey's name removed from the register; carried. Moved and seconded that the Judiciary Committee take action in regard to the same; carried.

President Huidekoper reported for the Publication Committee that they have verified almost the entire list for Greater New York, and expect to have the work in publication by the end of February. Moved and seconded that the report be accepted; carried.

The resignation of Thomas Giffen was next taken up. It was moved and seconded that the resignation be accepted; carried.

Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS, D.V.S.,
Secretary.

CHICAGO VETERINARY SOCIETY.

MEETING called to order February 11, 1897, by the President, Dr. Walker. Owing to the tardiness of many of the members it was 8.45 P.M. before the meeting was called to order. On motion, roll-call was dispensed with, a count showing only fifteen members present. The Secretary read the minutes of the two previous meetings, which were approved. Moved by Dr. Campbell, seconded by Dr. Worms, to dispense with the regular business and go on to the admission of new members. After the reading of the applications by the Secretary and the approval of the same by the Board of Censors, the following gentlemen were elected to membership by acclamation: Dr. Frank McCoy, Dr. Harry J. Stewart, Dr. J. A. Bovett, Jr.

A copy of a letter[1] which some time ago was sent to the Boss Horseshoers' Association, was then read to the Society. The latter was originally sent by a committee of three members. The Boss Horseshoers never having acknowledged the letter, it was moved and seconded to have the Secretary send them a copy of the letter, with another letter, asking them to acknowledge the same and give the Society their views on the matter. The letter referred to the practice of veterinary medicine and surgery by the horseshoers, and asking them not to do so.

The next order of business being new business, a lobbyist was introduced to the Society, who spoke about the Illinois State veterinary bill, now pending before the Legislature, at Springfield. Motion by Dr. Hughes, seconded by Dr. Worms, that three members be appointed to go to Springfield on the 16th to interview the representatives and to try to further the interests of the State bill. The President asked Dr. Hughes to appoint the committee. Dr. Hughes appointed Dr. James Henderson, Dr. E. L. Quitman, and Dr. Campbell, and stated that either he or Dr. Baker would also go down to represent the Chicago Veterinary College. Dr. Walker stated that he would also try to go.

Dr. A. H. Baker was the essayist of the evening, but owing to sickness he was unable to read his paper on "Open Joint." The paper was deferred until the next meeting. There being no further business, Dr. Hughes presented to the Society the *four* feet of a subject which had come under his notice; the peculiarity of the feet were that they were *all* affected with navicular disease. Dr. Hughes exhibited the feet (showing the navicular bone) because it was so unusual to find an animal affected with this disease both in front and behind. Quite a discussion was held on the subject, and quite an instructive talk was given by Dr. Hughes. A vote of thanks was given to Dr. Hughes for the exhibition of such an unusual case, and for his interesting discourse on the same.

On motion, adjournment. LAWRENCE CAMPBELL,
Secretary.

VETERINARY MEDICAL SOCIETY OF THE UNIVERSITY OF PENNSYLVANIA.

THE regular bimonthly meeting was held on Friday evening, February 5, 1897, in the lower lecture-room. Meeting called to order at 8 P.M.

After roll-call and reading of the minutes of previous meeting there was an inaugural address by President F. Klein, and the Secretary read an account of a collection of monstrosities.

There were two referred questions, as follows: One by Mr. William Shaw, class '97; "Resolved, That our patrons and visitors should not be admitted to the hospital or clinics;" the other by Mr. J. Repp, class '98: "On the Manufacture and Therapeutic Action of Sodium Chloride."

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[1] Will be published in April number.

The debate of the evening: "Resolved, That Fast Horses have been Detrimental to Mankind." Disputants, affirmative—Messrs. White, class '97; Blount, class '98; Keiter, class '99; negative—Messrs. Lushington, class '97; Jones, class '98; Fox, class '99. The judges were Messrs. Ray Barber, class '97; Al. Cunningham, class '98; J. P. Miller, class '99, whose decision was two in favor of negative and one in favor of affirmative side of the question.

The Society decided to subscribe for the *Pennsylvanian* after hearing a favorable report by critic Wm. Shaw.

Adjourned at 10.30 P.M.

The bimonthly meeting was called to order by President Klèin at 7. 45, Friday evening, February 19, 1897. All members responded to roll-call.

Motion to suspend the regular order of business for Dr. Ravenal's lecture was carried. Dr. Ravenal discussed the history of bacteriology and its promoters, among whom was the great Pasteur; he ably discussed all points of advancement made by Pasteur and the bacteriology of to-day, and the future prospects.

Next in order was a debate: "Resolved, that the veterinarian should not compound his own prescriptions." Disputants, affirmative: Cunningham, Townsend, and Barber; negative: Hernschein, Jones, and Hoopes. Judges: Ranck, Spaeth, and Keiter, whose decision was two affirmatives to one negative. Decision of house, negative.

Following this Mr. Montague answered ably to the referred question, "What is the Chief Characteristic of the Percheron Horse?" Critic Lushington's report was spicy and encouraging.

After business of minor importance the Society adjourned to meet March 5, 1897.

JOHN E. SPINDLER,
Secretary,

MAINE VETERINARY MEDICAL ASSOCIATION.

AT the Bangor meeting we received from Prof. Charles D. Woods, Director of the Experiment Station at the Maine State College, Orono, a cordial invitation to be present the next morning and assist at a post-mortem of an interesting case.

Condition as we saw her previous to death: Dunkard Girl, an Ayrshire cow, five years old; well nourished; pulse, temperature, and respiration normal; no perceptible signs of disease.

History. August 14, 1895, tested highest temperature, 107.4°; August 29, 1895, 107.4°; September 4, 1895, 102.5°; September 14, 1895, 101.4°; September 26, 1895, 103°; October 8, 1895, 105°; October 18, 1895, not taken; October 31, 1895, 102.4°; November 20, 1895, 104.8°; December 7, 1895, 101.5°; January 3, 1896, 103.5°; January 10, 1896, 101.2°; January 24, 1896, 101.2°; February 20, 1896, 100.9°; July 2, 1896, 103°; August 18, 1896, 101.6°; September 16, 1896, not taken; November 3, 1896, 101.6°; January 13, 1897, 102.6°.

Post-mortem. The posterior mediastinal glands and the inferior external portion of the right caudal lobe were badly diseased. All other organs were healthy as far as gross appearance went.

W. L. WEST,
Secretary.

MICHIGAN STATE VETERINARY MEDICAL ASSOCIATION.

DEATH OF DR. J. D. RUTHERFORD, M.D., V.S., OF THE VETERINARY DEPARTMENT, DETROIT COLLEGE OF MEDICINE.

WHEREAS, It has pleased Divine Providence to call from us our highly esteemed friend and brother, Dr. J. D. Rutherford, who so recently enjoyed the various blessings of this world and who was so rapidly rising in the ranks of his chosen profession, at the same time gathering about him a multitude of friends, who will ever regret his departure; therefore, be it

Resolved, That we, the members of this Association in convention assembled to-day, extend to his bereaved family our most earnest and heartfelt sympathies in this the hour of their affliction, and at the same time do express our great sorrow that one so valuable in our ranks should be taken from among us. But we console ourselves with the thought and belief that he has gone to a world where all is peace and happiness.

Resolved, That a copy of these resolutions be forwarded to his wife and family, as well as the veterinary journals of this country, and that the same be spread upon the records of this Association.

E. A. A. GRANGE, V.S.,
J. A. DELL, V.S.,
G. W. DUNPHY, V.S.,
Committee on Resolutions.

LANSING, MICH., February 2, 1897.

At a meeting of this Association, held in the city of Lansing, Mich., February 2 and 3, 1897, it was unanimously resolved that

WHEREAS, The passage of the bill now pending in Congress, directed toward the abolition of vivisection in the District of Columbia, would perilously impair the scientific experiments of the Bureau of Animal Industry, in which we as members of the veterinary profession are deeply interested; and

WHEREAS, The live-stock interests of this nation represent a large amount of invested capital, which for its successful operation looks for guidance on many vital points to experiments and scientific researches conducted by the Experimental Department of said Bureau of Animal Industry; therefore, be it

Resolved, That this Association express its disapproval of such a bill becoming a law; and be it further

Resolved, That the several Representatives of the State of Michigan in Congress and the several United States Senators for Michigan be furnished with copies of these resolutions and be hereby requested to vote against such bill and use such influence as they may deem proper to insure its defeat.

J. HAWKINS, V. S.,
D. CUMMINGS, V.S.,
H. M. GOHN, V.S.,
Committee on Resolutions.

MASSACHUSETTS VETERINARY MEDICAL ASSOCIATION.

THE regular monthly meeting of this Association was held at 19 Boylston Place on Wednesday evening, December 23, 1896. The President, Dr. John M. Parker, called the meeting to order at 8.15 P.M. Members present were Drs. Cronan, Frothingham, Hamilton, Howard, Lee, Lewis, McLaughlin, Pierce, Rogers, Stickney, Williams, Winchester, and Winslow.

The minutes of previous meeting were adopted. Dr. Peters reported for the committee appointed at the November meeting that they had sent memorials to the United States Senators and each Congressman of Massachusetts urging the passage of the Veterinary Surgeons' U. S. Army Bill—a bill to fix the pay, allowances, tenure of office, and rank of veterinary surgeons of the U. S. Army.

Dr. Winchester moved that the report of the committee be accepted; carried.

Dr. W. D. Plaskett, of Clinton, and Dr. R. E. Dyer, of South Boston, were elected members.

Dr. McLaughlin reported the case of a horse used in a tallow-wagon which had a large swelling on the side of the neck, about the middle. Blistered; drove on one rein; dropped dead on the road. Also reported some mild cases of pneumonia and a case of fractured os coronæ.

Dr. Winchester reported an interesting case of ascites.

Dr. Cronan reported a horse with paralysis of the left side of the face, due to a blow, which has responded to treatment; also a case of scirrhous cord.

Dr. Winslow reported a case of a horse cutting his lip on a fence brushing flies.

Dr. Parker reported a case of the gradual recovery of a partial fracture of the cervical vertebræ, although there is still an enlargement; also reported an experience that he had with a herd of fifty cows, and pointed to the necessity of thorough disinfection and of removing all diseased animals from a herd.

Dr. Howard reported a case of lameness of a bay mare; lame behind. Diagnosed thrombus. Treatment—potassium iodide; complete recovery.

Dr. Stickney reported a case of a horse that ran into a barbed-wire fence, producing a wry-neck; for two years could not use its head, but finally recovered.

Meeting adjourned at 10.15 P.M. HENRY S. LEWIS,
Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THIS Association was convened on the evening of January 11th, by President J. R. Hart, with forty-three persons present, among whom were Drs. Thomas and James B. Rayner, John R. Hart, Otto G. Noack, W. L. Rhoads, W. H. Hoskins, H. A. Christman, C. J. Marshall, H. D. Martien, and as representatives of the Milk Association, Joseph H. Miller, Secretary of the Milkmen's Exchange; George Abbott, George T. Gravenstine, John W. Scott, and a number of others.

After roll-call, the reading and approval of the minutes of the December meeting, the general order of business was suspended and George Abbott was introduced as speaker of the evening. His subject was the "Milk Question." He first spoke of the milk-supply of Philadelphia, maintaining that it was comparatively above reproach, as the reports show only about 3 per cent. of adulterated milk, which he thought was very small when we consider the vast amount consumed here annually (about 97,000,000 quarts), and the many sources from which it came. Jersey furnishes 20 per cent., New York 8 per cent.; a small amount comes from Delaware, and the remainder is furnished by Pennsylvania herds, many of which must necessarily be in not the best sanitary surroundings. Yet not one case of sickness in Philadelphia has ever been traceable to the milk-supply, and this record is not likely to be broken, as the more prominent dealers are having the herds from which they procure their supply regularly examined by competent veterinarians. He then exhibited a blank such as is used in the examinations of his herds once every three months. He thinks it would be in the line of progress if the State Veterinarian would issue certificates of health (after tuberculin-test) for cattle when applied for by owner, as these held by a few would be an incentive to all other producers who wished to be in the front rank. He then spoke of the Board of Health trying to enforce the antiquated Act of 1885, commonly known as the Pittsburg Act, relating to the production and sale of milk. This Act makes no allowance for unavoidable ignorance of facts, and holds a man liable for that which he could not possibly know, being with other pure-food enactments the only instance of the kind in our courts, and not one of the European nations will impose on any class of offenders in this way. While the Act requires 12½ per cent. of total solids (only Channel Island cattle will not fall below this limit), again it prohibits milk having a specific gravity over 1.033. The milk of Channel Islands cattle has a specific gravity above the limit, consequently all dealers would soon be in jail, except those left out through the courtesy of the milk inspectors. Regarding skim-milk, the Act requires 2½ per cent. of fat, while only 3 per cent. of fat is required therein for whole milk; this is practically prohibiting the sale of skim milk. Dietetists are a unit as regards the comparative cost and nutrition of skim-milk. They consider it the most wholesome, healthy, as well as the cheapest animal food to be had, when its nutritive value is realized and considered. In comparison with beef and mutton the ratio of its value is as three to one in favor of skim-milk. Of the 13 per cent. of total solids in average whole milk, 4 per cent. is fat, the remainder ash, sugar, and nitrogenous products, or roast beef. The fat gives force, energy, heat, etc., but does not build up the bodily structure. Life has been sustained for eleven years on skim-milk alone; this can be accounted for by the fact that at least two-thirds of the value of whole milk still remains. The inspectors claim the use of the lactometer will shield the milkman, yet they themselves do not rely on this alone, but prosecute solely upon analytical tests, they knowing full well that part of the cream may be removed and replaced with water without affecting the lactometer's markings. He spoke of cases where the inspectors recently condemned (by the lactometer) milk which, upon analysis, showed 5 per cent. of fat, and at the same time passed milk which analysis proved to contain but little upward of 3 per cent. of fat. He thought the pure-food law should have a reservation by which the dealer would be excused if he had done all in his power to detect fraud, of which he did not know or could not by reasonable diligence ascertain.

The speaker now closed his remarks by stating that he would be glad to answer any questions. Dr. Hoskins said he thought the milk question one of vast importance, as 95 per cent. of that produced was used as a raw product, and he believed its consumption had not increased pro rata with the population in the last five years. The reply was that in 1891 and 1892, following the first attack by the Board of Health, there was a marked diminution in milk-receipts, but in 1893 and 1894 they increased about 3,000,000 quarts per year. He attributed the lack of increase since that time principally to the hard times.

It was now moved and seconded that a vote of thanks be extended Mr. Abbott for his very interesting talk; this being unanimously passed, the Association again resumed its regular order of business. Dr. Hoskins read a decision of a New York State Court in regard to dehorning, in which they held it to be a surgical operation, and the non-graduate performing it liable to a fine of fifty dollars per day while operating. This agitated the question of dehorning, which, like all progressive movements, had much to be said for and against it.

Dr. Rhoads asked what the comparative results were of ovariotomy in cattle. After some little discussion on this, Dr. James B. Rayner spoke of the removal of the uterus. This called forth remarks from Thomas B. Rayner, H. A. Christman, W. H. Hoskins, and others.

The question of a lunch to be given at the February meeting was now brought up, and, after some pro and con opinions, it was decided to give a light lunch to the Association members and its invited guests at that time.

Drs. F. S. Allen, J. T. McAnulty, and W. H. Hoskins were appointed a committee to take charge of the affair.

The meeting now adjourned to meet Tuesday evening, February 9, 1897.

At the February meeting Rev. J. D. Diedrick, of Flowertown, Montgomery county, favored the Association with a talk, giving his personal experience with the construction and use of the silo and the method of feeding ensilage, the condition of his cows, and the quality of milk produced.

At the meeting Tuesday evening, March 9th, Mr. R. A. Pearson, Assistant Chief of the Dairy Division of the Department of Agriculture, will address the Association. A generous invitation is extended to all to come to hear him.

W. L. Rhoads,
Secretary.

TENNESSEE VETERINARY MEDICAL ASSOCIATION.

A meeting of the graduates of veterinary medicine and surgery in Tennessee was held at Nashville, February 9th, at the office of Drs. Rayen and Plaskett, for the purpose of organizing an Association. Quite a number of local veterinarians as well as visiting members were present. Dr. W. C. Rayen was appointed temporary chairman. The following officers were elected: President, Dr. J. W. Scheibler, Memphis; First Vice-President, Dr. Joseph M. Good, Chattanooga; Second Vice-President, Dr. H. D. Fenimore, Knoxville; Secretary, Dr. Joseph Plaskett, Nashville; Treasurer, Dr. T. W. Scott, Nashville. The afternoon meeting was occupied in an interesting discussion of rare and unusual cases that had come under the observation of the members present, and some time was devoted also to the consideration of new drugs.

The next meeting will be held at Nashville, just prior to the meeting of the United States Veterinary Medical Association.

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

On December 29, 1896, pursuant to a call by Dr. J. W. Petty, the veterinarians of North Carolina met in the city of Raleigh for the purpose of organizing an association, of which each of the following were declared to be charter members: Drs. C. B. Ellis, Charlotte; T. B Carroll, Wilmington; J. W. Petty, Greensboro; H. G. Bessent, Durham; W. C. McMackin, Raleigh; H. F. Bauer, Greensboro; H. B. Murray, Hickory; J. W. Rollins, Asheville; Daniel Quinlivan, Wilmington; Ashcraft, Monroe. The following officers were elected: President, C. R. Ellis; Vice-President, T. B. Carroll; Secretary and Treasurer, J. W. Petty.

The President appointed the following committees: Constitution and By-laws, Drs. J. W. Petty and H. F. Bauer; On Legislation, W. C. McMackin.

J. W. Petty,
Secretary.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

The veterinarians of Minnesota met at the Merchants' Hotel, St. Paul, January 28th, for the purpose of organizing a State veterinary medical association. A number of prominent veterinarians were present. The following officers were elected: President, Dr. S. D. Brimhall, Minneapolis; First Vice-President, Dr. J. P. Anderson, Rochester; Second Vice-President, Dr. A. Youngberg, Lake Park; Secretary, L. Hay, Faribault; Treasurer, K. J. McKenzie, Northfield.

A special meeting will be called in a short time. A regular meeting will be held at Owatonna in July, just previous to the assembly of the Southern Minnesota Veterinary and Dental Association, an organization of several years' standing, but whose work and influence have not extended to northern Minnesota.

IMPORTANT VETERINARY ASSOCIATION MEETINGS.

Pennsylvania State Veterinary Medical Association, Philadelphia, March 2d and 3d; California State Veterinary Medical Association, San Francisco, March 19th; and New Hampshire Veterinary Medical Association.

The Pennsylvania State Board of Veterinary Medical Examiners held their midwinter examinations on December 15th and 16th, at Philadelphia and Pittsburg. Some four candidates presented themselves for examination, but one of this number had not been examined before; the others were of those who failed in April and June—the new applicant, Dr. R. M. Phelan, of Sharon, Pa., a graduate of Ontario Veterinary College, class of 1895. The diploma and Regents' certificate of Dr. Major Schofield were presented, but were not accepted by the Board, owing to the fact that his license of New York was granted under an exemption clause of the Act, and not by examination. He was directed to present himself for examination. But two examinations will be held hereafter, in June and December of each year. The Board awarded licenses to Drs. M. J. Chrisman and R. M. Phelan.

U. S. V. M. A.

NOW FOR NASHVILLE.

The National Saddle-horse Breeders' Association will offer special cups for prizes at the Centennial Exposition of Nashville, and a strong exhibit is promised.

The famous breeding-farms of Nashville will be the source of much interest and pleasure to visiting veterinarians after convention days are over.

A generous and kindly spirit was shown by the Kansas City veterinarians in the canvass of their representatives in the interest of Nashville.

The work of Messrs. Rayen, Dalrymple, and Cary seems to have been well done at Buffalo.

Ex-Secretary Turner, now of Indianapolis, loomed up as a strong advocate of Nashville, and polled his ardent wishes with the Executive Committee.

Of the first twelve votes of the Executive Committee, ten were for Nashville for first choice, one for Columbus, one for Kansas City; but it is to be said that both of these latter were for Nashville on second choice. Well done, Nashville!

Already we hear of the ladies preparing for Nashville, and there will be some new faces there of those who heard from Buffalo after the convention days were over. The more the merrier.

PERSONAL.

Veterinarian G. Howard Davison is one of the directors of the Dutchess County Agricultural Society of New York State.

"External Diseases of the Hog, and their Treatment," was the subject of an address by William Belshaw, Seneca, at the January meeting of the Kansas Board of Agriculture. Veterinarian C. J. Sihler, of Kansas City, addressed the above meeting on the "Necessity for Meat-inspection."

Dr. N. S. Mayo addressed the Kansas Swine-breeders' Association, at Topeka, in January, on "State Control of Contagious Diseases."

Prof. A. Smith, of Toronto, will be one of the judges at the coming Boston horse-show.

The veterinary inspectors selected for the Boston horse-show in April are Drs. F. H. Osgood, Thomas Blackwood, W. L. Labaw, Austin Peters, and L. H. Howard.

Dr. A. W. Clement has been appointed a member of the committee of racing of the Pimlico Driving Club, of Baltimore, Md.

Veterinarian T. L. Swift, of Attleboro, Mass., holds the official position of milk-inspector for Attleboro, North Attleboro, and Falmouth.

Dr. J. W. Ferguson, of Bay City, Mich., will deliver a course of lectures to the Horseshoers' Association of that city.

Dr. A. Drinkwater, of Rochester, N. Y., is lecturing to the shoers of that city on "Anatomy."

Western Vice-President Stalker, of the U. S. V. M. A., has been seriously ill at his home at Richland, Ia.

Veterinarian W. R. Cooper, of Quasqueton, Ia., graduate of the Veterinary Department of the Ames Agricultural College, Iowa, has received an appointment as assistant meat-inspector, and assigned to duty at Kansas City.

Dr. Alex. Glass, of Philadelphia, was an interested visitor to the national dog-show at New York, in February.

Dr. H. J. McClellan, of Bryn Mawr, Pa., has recently been a visitor to Baltimore, Md., as a prospective location for future professional labors.

Drs. Jas. W. Sallade, of Pottsville, and Otto Noack, of Reading, addressed the Berks County Agricultural Society on the subject of "Tuberculosis" in February.

Veterinarian Gilbert, of Pottstown, Pa., who had his leg broken in August last, and was otherwise injured, has almost fully recovered and resumed his professional work.

Dr. Chas. H. Higgins, who recently went to Jamaica, has returned to his home in Dover, Mass., not finding the climate of that country congenial.

Veterinarians Ridge, Minster, and Wand, of Bucks County, Pa., have been speakers on the subject of "Tuberculosis" at the several Farmers' Institutes held in that territory during December and January.

Dr. Lloyd, of Towson, Md., conducts a veterinary hospital in connection with his practice.

Dr. Ernest M. Hutchinson, graduate of the Chicago Veterinary College, recently of Jackson, Tennessee, is now located at San Francisco.

Dr. C. D. Smead, of Logan, N. Y., addressed the Empire State Sheep-breeders' Association, at Rochester, in January, on the "Diseases to which New York Sheep are Subject."

Dr. Tait Butler, of Agricultural College, Mississippi, was the purchaser of two Poland China boar hogs at the Springfield, Ill., sale in January.

Veterinarian Harrington has been elected Secretary of the South Boston Driving Association, recently organized.

Dr. C. C. McLean, of Meadville, Pa., has reconstructed his hospital, enlarging it to a considerable extent.

Dr. M. E. Knowles reports the animals distressingly healthy in Montana.

Dr. D. C. Stanton, of Factoryville, Pa., has been on the sick-list for some time past.

Dr. Jas. T. McAnulty is making a thorough canvass of the Keystone State in the interest of the horseshoers' bill, which is presented on another page of this issue of the JOURNAL.

Dr. John R. Mohler, of Philadelphia, graduate of the Veterinary Department of the University of Pennsylvania, has received an appointment under the Bureau of Animal Industry, and has been assigned a position along the border established as the Texas-fever line.

Dr. U. G. Houck, of Berwick, Pa., graduate of the Veterinary Department of the University of Pennsylvania, has received an appointment under the Bureau of Animal Industry, and has been assigned to duty at Chicago.

Prof. Sweetapple, of Toronto, Canada, has been a victim of the "grippe," but we are glad to report his convalescence.

Dr. Harry Walters, of Wilkesbarre, has been confined to the house by illness and unable to pursue his professional duties.

Veterinarian Schwarzkopf, of Chicago, Ill., has sufficiently recovered from the injuries received by a trolley-car injury to be at his post of duty.

Dr. W. H. Dalrymple, of Louisiana, has been elected secretary of the State Agricultural Society and secretary-treasurer of the State Stock-breeders's Association, a new organization in the Creole State.

Dr. H. Clay Glover officiated as veterinarian to the Westminster Kennel Club Exhibition at Madison Square Garden in February.

Veterinarian O. C. Farley has recently fitted up in an elaborate manner an office on Broadway, New York City.

Dr. James B. Rayner, of West Chester, Pa., has been seriously ill from a series of carbuncles.

Veterinarian J. A. Pearson, of Chicago, Ill., was a visitor to the JOURNAL office in February.

The many friends of Dr. S. E. Weber will be glad to learn that he is in greatly improved health, and looking forward to a return to his books and investigations.

Veterinarian S. C. Tremainie, of Bridgeton, N. J., takes a keen interest in the homing-pigeon, and was recently elected vice-president of the Homing Club of that city.

Veterinarian Oglesby, of Bonham, Tex., has been seriously ill, but we are glad to learn of the early prospects of his return to his professional studies.

Veterinarian J. E. Ryder was a strong second in the bidding for the famous hackney stallion "Matchless," at the sale in New York. It is said he represented the Duke of Marlborough.

Dr. P. I. Kershner, of Fleetwood, Pa., has received an appointment as inspector under the Bureau of Animal Industry, and has been assigned to duty along the Texas-fever line.

FACTS AND FANCIES.

The house-cat has added another burden of responsibility, having been the agent of transmission of smallpox from one house to another.

The Pasteur Institute of Paris reports one case of rabies in every twenty treated the result of cat-bites.

Dr. Webb's famous hackney stallion "Matchless," of Londesboro, brought $12,000, and was purchased by Mr. Walter L. Clark, a noted hackney breeder.

Baroness Hirsch has recently given to the Pasteur Institute of France the munificent sum of $50,000 for the furthering of the important work of this institution.

The annual meeting of the Iowa State Veterinary Medical Association, in January, was a very successful gathering.

The Minnesota Legislature has been asked for an appropriation of $18,000 for the erection on their State fair-grounds of an amphitheatre seating 10,000 people, to judge their live-stock in.

WANTED.—Position as assistant by a graduate who had some experience. Address Doctor, care of A. Eger, 57 East Jackson St., Chicago, Illinois.

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PURE MILK.

BY R. A. PEARSON, B.S.,
ASSISTANT CHIEF, DAIRY DIVISION, UNITED STATES DEPARTMENT OF AGRICULTURE.

THE question of pure foods is one receiving much attention. Those foods having an indefinite composition and whose values are not easily determined by a superficial examination are, naturally, the ones that the strongest efforts are being made to improve. Of these milk is the most important. It is unnecessary at this place to dwell upon the value of milk and its products as food, or to refer at length to the large number of people, especially the sick and the young—the ones least of all able to resist disease—who depend mostly or entirely upon milk for their subsistence. This fluid contains all the constituents of a complete food, and when it is fresh they are in a condition to be easily digested. It is natural that such a medium should be, and is, easily contaminated, and much interest has been aroused in the efforts being made to produce a pure article. Producers appreciate the importance of reform, and methods of producing pure milk are frequently discussed in farmers' meetings.

The purity of milk depends upon the selection, health, care, and feed of the animals; the cleanliness of the utensils; the degree of cleanliness that obtains in the stable and all places where milk is allowed to be; the neatness of the persons who handle the milk; the temperature at which it is held; the age of the milk when it reaches the consumer; and its care after the final delivery. The steps through which this delicate fluid passes might be compared to links of a chain—if any one is imperfect, the entire chain is weak, even though every other link be faultless. From a practical standpoint the subject is pretty well covered by popular lectures and many articles in print.

The medical profession and many scientific bodies are interested in the question of pure milk. They look at the matter from a somewhat different standpoint than the farmer, and usually discuss the questions more from a scientific point of view. The subjects occupying their attention are usually the bacterial infection of milk, its germ content, milk as a carrier of disease, the food-value of milk, etc. Very practical papers are frequently offered. Physicians have many opportunities of seeing and following the results of the use of unwholesome milk; they realize that about one-third of all the deaths are of infants, a large proportion of whom are fed on cow's milk, and this food receives its share of blame for the high mortality. Extremely rash statements are sometimes made, and some persons have become so alarmed that they have given up the use of milk. The "milk scare" seems now to be a thing of the past, and it is to be hoped that it will not again be revived. Some of the agencies that have served to increase the confidence of the consumers are the enforcement of laws relating to the composition of milk, the great improvement in the production and care of milk adopted by many leading dairies, and the milk that is practically perfect in every way now to be found on the market in most cities. The improvement in milk sold in cities and towns has been great. Only a few years ago it was the privilege of any dealer to add as much water to his cans or take as much cream from them as he pleased, and as long as he could make the customer believe the milk was good he was satisfied. The general enforcement of laws against skimming and watering has had a marked effect on improving the quality of milk so far as its chemical composition is concerned.

Pure milk, however, does not signify simply milk having a normal chemical composition. It means freedom from any form of contamination, not the least important of which is bacterial contamination. The sanitary side of dairying needs to be brought into greater prominence, and requires much more attention than it has received.

The contaminations of milk may be divided into two kinds: (1) those affecting the quality from a chemical standpoint, and (2) those affecting the quality from a hygienic standpoint. The first relates chiefly to skimming and watering, by which the quantity and relative amounts of the various constituents are changed; the second to the bacteriological content and the various fermentations that may be taking place. It is sometimes attempted to estimate the losses caused by skimming and watering, and enormous amounts are named; but it is not believed that these nearly equal the losses caused by taints or peculiar changes of the milk, or bad effects of milk due to the organisms which it carries.

Milk is a most excellent medium for the development of bacteria; it contains the constituents necessary for germ-growth, and when it is drawn from the animal the temperature is just right for their rapid increase.

A multitude of forms of bacteria thrive in milk, and their growth and multiplication are marked by changes in the taste, odor, color, and appearance of the fluid. The most common species are those forming lactic acid, and causing the milk to become sour. These act on the milk-sugar, which constitutes about 5 per cent. of milk testing 4 per cent. of butter-fat, and produce lactic acid. Delicate tests have been devised for measuring the amount of acid in milk, and it is easily shown that when carelessly handled it contains two or three times as much acid as when of the same age but carefully handled. It should have less than two-tenths of 1 per cent. acid for household use. Several species of bacteria produce lactic acid; they are the most numerous forms about a dairy, and it is practically impossible to keep them all out of the milk. It was formerly supposed that thunder-storms caused milk to sour, but it has been proven that such is not the case; lactic-acid germs are responsible for sour milk.

Other forms cause the milk to become alkaline, in which condition it may curdle. Others produce various colors and cause the natural color to be tinged more or less deeply with red, blue, or yellow. Slimy milk is a fermentation in which the fluidity is partially lost, and when it is attempted to dip from the container long strings may be formed. A soapy taste is caused by another organism. Some of these germs seem to be harmless, but they are all highly objectionable; and when a dairy becomes affected with those causing peculiar changes, the milk is practically worthless until the trouble ceases.

When a milk emits a peculiar odor it is sometimes due to food the animal has eaten or to the milk standing in an atmosphere impregnated with a strong odor. A familiar example of the former class of taints is the taste of garlic, with which milk is affected in the spring and fall. The fact that milk readily takes up odors if exposed to them is well known to housekeepers, who are careful not to store it near vegetables or in any place containing an objectionable smell. Whether the taint of milk is due to feed the cows have eaten or to bacteria may usually be easily determined as follows: If the odor is strong when the milk is first drawn, and gradually decreases, it is probably due to food eaten by the cows. If it is not at first noticed, but gradually becomes apparent, continually growing worse, it is probably due to bacterial growth.

Pathogenic germs, as a rule, have no peculiar effect on milk; but they are readily carried by it, and outbreaks of disease have been due to milk contaminated by them.

Many methods of purifying milk are practised, but none of them are entirely successful. Dirt may be completely removed by patent strainers, filters, or the separator, but the bad effects of dirt cannot be gotten rid of so easily. These devices may make the milk appear clean, but none of them can take out bacteria or the products of their growth.

Sterilization has been recommended as a means of getting around the difficulty. If sufficient heat is applied the micro-organisms will be killed; but the products of their development up to the time of sterilizing remain; besides this, the taste of the milk is materially changed, making it disagreeable to many people, and it is supposed to be less digestible. The operation of sterilization also requires much labor and expense. Pasteurization requires less heat; it does not kill all the bacteria, and it has less effect on the taste of the milk. Much Pasteurized milk is now sold; but the fact that milk has been Pasteurized does not necessarily mean that it is clean or pure—it simply signifies that the active germs have been destroyed, and the milk (if it has been held at a low temperature), after being Pasteurized, is about the same as it was before being heated. The application of heat makes it possible to keep ordinary milk in good condition much longer than could otherwise be done, and at the same time retain its food value. A chief advantage of heat is the destruction of pathogenic germs that may be in the milk, and this is sufficient to cause some physicians to recommend that all milk not known to have been properly cared for and handled be Pasteurized or sterilized before use.

Preservatives are not here considered, as their use is deprecated by the best authorities.

Strainers, filters, Pasteurizing appliances, and other apparatus for cleaning and purifying milk are for the purpose of bringing it back as nearly as possible to the state of cleanliness in which it is found in the udder of the healthy cow. If it were drawn and handled with sufficient care none of these mechanical aids would be necessary. Bacteria are so abundant in the air about a dairy, however, that it is impracticable to secure milk without some infection; but it has been proven beyond a question that it is practicable and profitable to produce milk having but a few hundred bacteria per cubic centimetre, whereas ordinarily the same volume contains many thousand organisms.

(To be continued.)

WHAT PROFESSOR BANG'S WORK TEACHES.[1]

BY LEONARD PEARSON, B.SC., V.M.D.,
PHILADELPHIA.

PROFESSOR BANG, of the Imperial Veterinary School in Copenhagen, Denmark, is one of the greatest authorities on tuberculosis of cattle. His researches in this field have been published from time to time during the last fifteen years, and to him belongs the credit of having first discovered and called attention to many of the facts in connection with this disease that were previously unknown, but have since been repeatedly observed and re-demonstrated.

Denmark, Prof. Bang's country, is one of the smallest in Europe, but its inhabitants are thrifty, frugal people of a high order of intelligence and much conservatism. They depend largely, if not principally, upon the products of the dairy for their support, and although the country has a population of but 2,200,000, and an area of but little over 15,000 square miles, about one-third the area of Pennsylvania, there are in Denmark about 1,700,000 cattle (approximately the number in Pennsylvania). To illustrate the importance of the dairy it may be stated that in 1890 Denmark exported more than $22,000,000 worth of butter and more than $2,000,000 worth of cattle. This amounts to more than $10 for each inhabitant of the country.

It has been known for a long time that tuberculosis is a widespread disease among the cattle of Denmark, and various measures have been recommended and applied with a view to its suppression. From the above statistics it can readily be seen that the subject is one of great economic and national importance in Denmark, because it threatens the principal source of the country's wealth and prosperity. In 1892 an appropriation was made by the government for the support of investigations to be carried out by Prof. Bang for the purpose of determining the most practical means to be employed in restricting the ravages of this disease. The appropriations have been renewed from year to year and increased until at present they amount to about $30,000 per annum.

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[1] Read at the meeting of the Keystone Veterinary Medical Association, March 9, 1897.

This government work has been conducted on such a large scale and in such a thoroughly careful way that the results are more instructive than those derived from similar experiments conducted elsewhere. One of Prof. Bang's recent publications was translated by the Hatch Experiment Station of the Massachusetts Agricultural College and published as Bulletin No. 41 in August, 1896, and this bulletin has been referred to and quoted from so frequently that Prof. Bang's name is now well known among readers of agricultural papers and those who take an interest in the discussions on tuberculosis of cattle. It is always possible, by quoting disconnected sentences and isolated paragraphs, to give an inaccurate and sometimes a very misleading impression as to the author's opinions and statements, and this has occurred in reference to the writings of Prof. Bang.

The writer has been familiar with the work of Prof. Bang for a long time, and has given his numerous publications careful study, which has been supplemented by conversation and correspondence with their author. The lessons that may be learned from Prof. Bang's writings and experiments are so important to us in this country at the present time that it seems well to formulate some of them and to attempt to express them without ambiguity. Among the most important are the following:

Prevalence of Tuberculosis. It had been known for a long time that tuberculosis prevailed extensively among Danish cattle, but the actual extent of the disease as revealed by the use of tuberculin was something of a surprise. In testing more than 53,000 cattle it was found that 38.5 per cent. of them were tuberculous to a greater or less degree. Moreover, it has been shown that the germs of tuberculosis are not omnipresent, because many herds are entirely free from all traces of this disease, and in some of these healthy herds the cows were large producers of the class.

Degree of Contagiousness of Tuberculosis. It has been clearly shown that the longer the disease exists in a herd the greater is its prevalence, leading to the belief, which is substantiated by other observations and experiments, that long-continued contact is necessary for the extensive prevalence of tuberculosis in the herd, and the longer such contact has existed the more extensive will be the spread of the malady. That some herds remain healthy notwithstanding the fact that they have been exhibited at cattle-shows and in public places, where they must inevitably have been exposed to the germs of tuberculosis for a short time, indicates that such exposure is not always dangerous. The infection in many herds has been traced to the introduction of a single diseased animal.

The Infectiousness of Milk. The milk from tuberculous cattle has been known to produce tuberculosis in calves and swine in very many cases, and also, strange to say, in such a comparatively immune animal as the horse. Attention is called to the dangers that accompany the use of skimmed milk from creameries, because if part of this milk is supplied by tuberculous cows, and the mixed product is returned to the farm, the disease may in that way be communicated to healthy herds; and common observation has proved that this is not rare. It is advised to heat all such skimmed milk to 185° F. before it is used. This destroys the tubercle bacilli.

Heredity. Tuberculosis is rarely inherited, and in all but the most exceptional instances the calves of tuberculous cows are sound when they are born, and if removed from contact with tuberculous animals and fed on milk from sound cows or milk that has been heated to 185° F. they will remain free from tuberculosis.

The matter of inherited predisposition to tuberculosis is considered, and some doubt is thrown upon its influence and even its existence. As there is no reason to assume "that a calf whose sire or dam suffers from tuberculosis accidentally acquired has thereby inherited a predisposition for tuberculosis which offers a more favorable nutritive soil for the development of the germs of tuberculosis, the predisposition, however great it may be, can play no practical part if infection is avoided."

Tuberculin as a Diagnostic Agent. The prevailing opinion as to the accuracy of tuberculin as a diagnostic agent is amply sustained, and it is established that the use of tuberculin furnishes by far the most accurate means of detecting tuberculosis and permitting the inspector to separate the healthy from the diseased cattle. It is made clear that the degree of reaction does not indicate the extent to which an animal is diseased, and that a high reaction may sometimes occur in an animal that is but slightly affected. It is also stated that from the degree of reaction conclusions as to the development of the disease must be drawn with great care. The reported failures to discover the lesions of tuberculosis in making post-mortem examinations upon animals that have been condemned by the use of tuberculin are incorrect in great part, since practically all of the tuberculous animals destroyed in European countries are killed in slaughter-houses. As their flesh is prepared for the market after inspection and under certain restrictions and exceptions, it is quite evident that all parts cannot be fully investigated, and doubt always accompanies a negative result.

Prof. Bang's personal experience, which is larger than that of any other veterinarian, has shown but three cases of typical reaction in which it was not possible for him to discover tuberculous deposits, and in one of these there was disease of a chronic and incurable character. It is stated, and this is well known to every one who has used tuberculin practically, that some severe cases do not respond to the test, but must be detected by a physical examination. Prof. Bang says that it is probably always possible to discover these causes by the usual clinical investigation, except where the disease has become stationary and is of slight development. These exceptions are minor and unimportant. Tuberculin is not to be relied upon implicitly as a diagnostic agent, but furnishes a method of diagnosis so incomparably superior to the methods previously employed that it is scarcely to be compared with them.

Dangers Attending the Use of Tuberculin. After an experience extending over 53,000 cases Prof. Bang is of the opinion that tuberculin is not injurious to healthy animals and that it cannot injure tuberculous animals, except by causing the disease to advance more rapidly, and that such "an acute development of tuberculosis as a result of tuberculin injection is to be feared only exceptionally and then in cases of advanced tuberculosis."

His final conclusion is "that we have now found that in tuberculin we possess if not an absolutely infallible, still an excellent means for recognizing tuberculosis, and that its application is not connected with any particular danger." It is also stated that "tuberculin has been employed upon a large scale for years, and still the demand from farmers constantly increases."

The Use of Infected Cattle. It is evident that if all tuberculous cattle in Denmark were destroyed, without compensation to their owners, the result would be widespread financial distress and ruin; and it is out of the question for the government to attempt to pay for all such cattle, because the amount required for this purpose would be beyond its resources. Therefore another method has, perforce, been adopted, viz., the retention of the animals that have reacted to the tuberculin test, and use them for breeding, for milk-production, and for the shambles. It has been found that under certain precautions the cattle can be so used with safety, and the saving is so great that a more radical method would under the circumstances be unjustifiable. But it must be observed that the tuberculous cattle are kept alive only in perfect isolation from healthy cattle. They are cared for separately and, when possible, by separate attendants. They are kept in separate buildings or in distinct and completely separated sections of a common barn. Their calves are removed the day after birth and are brought up on milk that has been heated to a point that will insure the destruction of tubercle bacilli. Their milk is used for the manufacture of butter (principally for export to England), but only after it has been heated to 185° F. In this way healthy herds are being developed from tuberculous ones, and, as the tuberculous cattle die or are killed for beef, the reacting division of the herd becomes smaller and smaller until finally it has disappeared, and thus tuberculosis is being allowed to die a natural death.

The Curability of Tuberculosis. Occasionally tuberculosis becomes latent after an animal has reacted to tuberculin; the subject improves in condition and fails to react upon subsequent injection, so that it may not be possible to confirm or re-establish the original diagnosis. This takes place most frequently in the cases that are less advanced; and some have thought that such cases might be cured. In order to throw light on this question Prof. Bang killed and made post-mortem examinations upon four animals of this sort, but found that they all had tuberculosis, and he says: "I therefore do not venture to draw from these observations the conclusion that the animals that failed to react one year after a typical reaction are to be regarded as cured. In many cases this conclusion would, perhaps, be justifiable; but, as it cannot always be the case, I consider it advisable to look upon animals that have once shown the typical reaction as suspicious and leave them in the reacting division."

The Use of the Flesh of Tuberculous Animals. Under proper inspection and certain restrictions and exceptions it seems to be quite admissible to use the flesh of some tuberculous animals without danger, and such is the practice not only in Denmark, but in all other European countries. Some carcasses are condemned outright and destroyed. Others are sterilized and sold as cooked meat, while still others are allowed to go upon the general market without restrictions or with the information that it is derived from tuberculous animals, so that those who purchase it may use it with especial care. These measures are generally regarded as sufficiently rigorous.

It is Possible to Eradicate Tuberculosis. Most important of all, Prof. Bang has shown that by the use of tuberculin and measures based upon its use it is quite possible to eradicate tuberculosis in herds. This he has demonstrated on such a large scale in so many instances that there can be no doubt about it. Moreover, he has shown that by the employment of the Danish system the suppression of tuberculosis can be accomplished at comparatively small expense, and that the measures inaugurated in Denmark are constantly growing in popularity among live-stock owners.

His conclusion, as published in Bulletin No. 41, above referred to, is as follows: "The struggle against bovine tuberculosis must, of course, be of several years' duration. But it can and must be crowned with victory. In this struggle tuberculin has yielded us invaluable service. Only with the aid of this agent can we determine the actual extent of this disease. On the basis of the tuberculin investigations we are already in position to establish a rational plan of operation; and by this means alone can we retain the advantages gradually won; but the contest is well worth the pains. The conquest of bovine tuberculosis promises not only large economic profit, but also the annihilation of an important source of human tuberculosis."

SUNSTROKE.[1]

By L. O. Lusson, V.M.D.,
ARDMORE, PA.

Sunstroke is a sudden cerebral disturbance of an apoplectic nature due to exposure to excessive heat of the sun, occurring when there is an absence of humidity, and accompanied by delirium, coma, and death. Predisposing causes—plethora and disordered digestion, with torpidity of the liver.

Direct Causes. Exposure to the rays of a blazing sun.

Symptoms. If the driver is observing, he will notice that the animal is dull, that he does not sweat; his breathing is heavy, nostrils dilated; later his gait is unsteady, and a little later may stagger and fall, but will try to regain his feet and continue to rise and fall until, from exhaustion, he is compelled to remain down. He will throw the head up and down with great violence, and is unconscious of pain when striking the ground. If we make our examination at this time we find the skin extremely hot; mouth dry and very hot; mucous membrane congested; pulse rapid and cordy;

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[1] Read at the meeting of the Pennsylvania State Veterinary Medical Association, Philadelphia, March 3, 1897.

respiration very fast; temperature from 105° to 107° F. This period of delirium may last from one to three hours. Then comes the period of collapse, the temperature suddenly falls two to four degrees, the surface becomes cold and clammy, the respirations are rapid, shallow, stertorous breathing, pulse rapid and feeble. The animal is then in a perfect state of coma, and if not treated usually dies in about an hour. The alterations are those of an intense cerebral congestion, the centres of the medulla most affected.

Diagnosis. From the symptoms and differentiated form of exhaustion, prodromes of laminitis, by the delirium, high temperature, and absence of diarrhœa.

Prognosis. Very fatal, on account of the inability to handle the subject.

Treatment. Perhaps bleeding in plethoric animals and at the beginning of delirium. Ice-packs or cold water over the surface. Ice to the head and in the mouth until temperature begins to fall; then push alcoholic stimulants concentrated in small quantities every half-hour. Application of alcohol with friction over the surface; warm clothing; hypodermic injection of strychnine, one grain every half-hour, when collapse is expected or subject does not rally under alcohol.

As this brief paper is only the result of my personal experience with sunstroke, and is written solely to bring forth a discussion, I ask for the kind indulgence of this Association.

CANNABIS INDICA—CANNABIS AMERICANA.[1]

By Charles Williams, V.M.D.,
PHILADELPHIA.

The *United States Pharmacopœia* recognizes the dried tops of the cannabis sativa, or common hemp-plant, as it grows in India and in our own country. The fluid-extract of this plant is a dark-green, resinous liquid of a peculiar narcotic odor and taste. Gunjah is the dried plant as sold in the bazaars of Calcutta. Churrus is the resinous exudate with the epidermis, etc., scraped off the leaves. Hashish is an Arabian preparation of the drug. The resinous principle, representing the active ingredient of the drug, is known as cannabis. It also contains a trace of volatile oil.

Physiological Action. Indian hemp is a deliriant narcotic, anodyne, and antispasmodic. Bhang is said by Finlay Dun to be widely used in India to stay the flagging spirits, and larger doses to produce pleasing, drowsy narcosis. Similar effects are said by the same author to be produced in horses: the flagging appetite is improved, a capacity for exertion increased, and restlessness overcome. Sir Robert Christison stated that "for energy, certainty, and convenience Indian hemp is the next anodyne to opium, and often equals it." Mr. Richard Rutherford, of Edinborough (says Finlay Dun), has used gunjah for several years for colic in horses, and "finds that it acts promptly and without any of the headache, delirium, or blocking of the bowels, as opium is almost sure to do. Horses receiving full doses soon become drowsy, hang the head, finally relax the ears, close the eyes, nod the head, and sway from side to side. If the drug is continued they lie down, stretch out at full length, and certainly evince every symptom of dreaming, for they will move the lips, wink the eyes, and work the limbs as a dog will do when dreaming by the fire; but I never remember their making any vocal noise. The effects pass off in half an hour to an hour, when the animal rises and usually begins feeding without any other consequent symptoms."

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[1] Read at the meeting of the Pennsylvania State Veterinary Medical Association, Philadelphia, March 3, 1897.

Cannabis in Colic. It is on this point that I wish to speak of the drug as of the greatest use to the veterinarian. I consider this drug is the anodyne *par excellence* in all our animals, for, as Finlay Dun says, "it gives no deleterious after-results, and an animal with a simple case of abdominal pain may work again in a few hours when relieved." In treating a case of colic I find about two drachms of the fluid-extract poured on the tongue and repeated every fifteen to twenty minutes are about right; some use less and others use more. I believe there is no danger in larger doses, but I think equally good results are derived from oft-repeated small doses. At all events you will save expense and relieve the animal about as quickly. If the animal's circulation is good, so that absorption takes place readily, and the extract is made by a reliable chemist, the animal should be under the influence in about thirty to forty minutes, and either lie down or doze off standing, after using only one-half an ounce to one ounce of extract. There are occasionally cases where it will be necessary to administer four ounces. But I can assure you, gentlemen, when it takes four ounces or more of a good preparation of this drug things will begin to look serious, and the vigilant practitioner will perceive long before he has gotten to this stage that there are other things required besides a simple anodyne, for all we claim of this drug is to make the animal comfortable till nature can remove the offending element without interfering with the action of the bowels. Of course, I do not wish to be understood as recommending this drug as a panacea for all colics without any other treatment, as some do for their favorites (barium chloride, for instance); but when we get excessive flatus we need something to check fermentation, and the trocar to relieve pressure, and when we get a congestive colic we need the fleam, with mustard to the sides and cannabis by the mouth, and so on. But I will repeat, when a simple narcotic and anodyne are required, cannabis indica is the drug *par excellence*, and I think if any of you have never tried it you should do so, and it will give you much satisfaction.

WHY?

BY W. L. RHOADS, D.V.S.,

LANSDOWNE, PA.

WHY, my fraternal brothers, you ask, have I chosen such a subject? "Why" allows me scope for a number of inquiries and assertions as the subject would of itself suggest.

"Why" are we veterinarians, as a class, prone to travel in our own individual route or rut? I use the latter term advisedly, for too many of us are at present living in a rut, or perhaps a myriad of ruts, which will be found very hard to leave when we are at last awakened by the onward movement of the Juggernaut car of science, which we will find overtaking us in the natural course of events unless we now take hold of the work before us and live according to the revised reading of the old axiom, "that all things come to him who waits." This, in accordance with the times, has added to it, "and hustles while he waits."

Are not periods of depression in our work times when we are taught to note how narrow has become our sphere of work and how great the field of our possibilities when properly managed? Lowell has said, "to a healthy mind the world is a challenge of opportunities."

"Why" not make these times of waiting hours of improvement, that we may more thoroughly grasp our whole duties; that we may be better able to cope with the difficulties and dangers that constantly beset us on every side?

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[1] Read at the meeting of the Pennsylvania State Veterinary Medical Association, March 3, 1897.

We should remember that absence of occupation is not rest—"a mind quite vacant is a mind distressed." "Why" wait around aimlessly with your thumbs thrust into the armholes of your vest or possibly stuck deep into otherwise empty pockets? If you think you are posing, let me make a suggestion: don't continue in that line. Veterinarians, as a rule, make poor artist's models. About one in a thousand succeeds, and you are not the man. You stand just as good a chance for a foreign mission, and you cannot get that until all the good after-dinner speakers have declined.

"Why" not use this time in attending and assisting your local veterinary medical associations? "Why" not at least answer the invitation tendered you to do so? "Why" is it that not 3 per cent. of the veterinarians so honored are enough interested to answer the same? Is it due at this time to a rush of business or on account of the exorbitant price of postal cards? "Why" do you consider your fellow-practitioner less worthy of an immediate reply than any other correspondent? Are you interested in the profession only so far as it has a monetary value to you directly? If your interest is of a broader gauge, and I trust it is, why not show it by granting your fellow-practitioner an early reply to all correspondence? "Why" not show your interest in a more potent form by attending the meeting of your local veterinary medical association? If you are not a member, go as a visitor. You will always find the latch-string out, or, in later phraseology, "just press the button, and they will do the rest." You will soon become so interested that you will realize your need of association-fellowship and wonder how you existed without it. Or probably you are one of those who are willing to enshroud themselves in a mantle of egotism and feel the meetings of the association unworthy of their attendance and support. Yes, I meant to use the word shroud, as such an article will be useful in an early professional burial. Do you not realize that the rapid advancement of our profession is due in a great measure to our associations? Then why are you contented to continue your parasitic existence? You cannot even be considered as a sponge, for it will upon pressure or by slow evaporation give out all it has taken up.

"Why" not give to your fellow-practitioners at these meetings, or through the medium of the veterinary journals, more of your cases and experiences, that all may be benefited and our worth to our people enhanced all over the land? Some one may be encouraged and enthused by your effort to lighten the burden of the veterinarian, and in return may suggest the idea you have been groping after for years. "Why" not be willing at all times to give your professional brother a light from your cigar? He has gained; you have not lost; perhaps you have gained also by the aroma of his probably superior Havana, which had been useless to him until the procuring of your assistance. "Why" not be ever ready to reach out the right hand of good-fellowship and assist each other? Not willing to do it only on demand, but proffering it all times, thus showing to your professional brethren that you have an object in life—an object which in your case deservedly begins with a capital O.

What do we live for, if it is not to make life less difficult to others? "Why" not, in furtherance of this same end, take a greater interest in public affairs, and thus loan your valued influence to better government throughout the land? We, as a profession, take little appreciable interest in politics, and why? Is it because we are afraid of crossing our clientage? Can we not well afford to do without the practice of the narrow-minded cynic who ceases to employ us when we not only prove ourselves capable of administering to his stock, but prove we have a mind capable of independent thought by being men enough to assert the courage of our political convictions? "Why" is it that we find so few veterinarians on our local boards of health, when they are so well prepared both by education and training to act as sanitary experts in perfecting the healthfulness of the meat-, milk- and food-supply of a community as well as the sanitary surroundings?

"Why" is it that the veterinarians will vote, and in many cases assiduously work, to accomplish the desired ends for probably a valued client to us, financially, yet as a politician he may be a ringster and a spendthrift with the public moneys—moneys which too many of the legislators of to-day feel it a duty to spend in many cases wantonly and recklessly? Yet all this money comes through the channels of taxation from the individual who demands that the public receive it in a way which guarantees the greatest good to the greatest number. "Why" are our veterinarians assisting in this robbery of the populace by charging exorbitant fees for public work—fees which in many cases trebly repay them for that day's loss of private practice? Are you not putting a stumbling-block in the way of the furtherance of just such work? It is true a stumble may prevent a fall, but it is not well to stumble too often. It looks suspicious and may cause rumors; you will then have cause to ask yourself *Why?*

"Why" will our members deride and criticise legislation already gained (which, though probably not what we would like it to be, is yet a stepping-stone to better results), when they absolutely refuse to loan their assistance toward the procuring of this much-to-be-desired article? "Why" is it that men most loud in their protest against such legislation, and always ready to illustrate its faults, are the ones who positively would not lend their assistance in its preparation in order that it might have been free from the defects against which they cry out? "Why" will our members try to break down good laws that many of them have sorrowed over in the past because they did not exist? "Why" will members of the veterinary profession who believe in the merit system of appointment see it endangered for their own selfish ends when they know that for their own gratification, lasting but for a few short moments at best, they endanger a system which all aim to perpetuate in their own professional career?

"Why" not pause a moment to think? You will then realize that your efforts for self-aggrandizement at the expense of your fellow-men are of the boomerang character, and are apt to turn upon the projector. Such work will in the end receive such recompense as it merits.

"Those who by aspersions throw a stone at the heads of others hit their own."

"Why" will the young men of to-day deride and criticise the older ones in practice with whom they come in competition? They fail to realize that their position as practitioners has been made possible by these same men, who have worked shoulder-to-shoulder early and late when there was little apparent honor in it, at the same time breaking tidal wave after tidal wave of ignorance, arrogance, and depression, knowing full well that good intentions clothe themselves with sudden power.

"Why" is it that so many will be fully aware of many things punishable, yet apparently fail to see them till they begin to encroach upon forbidden personal territory? Then the cry of anguish is raised, and you are surprised that you are not immediately lifted out of a quagmire into which you persisted in going. "Why" not come out boldly at the first offence and at the first trampling upon your rights assert your manhood and professional standing, for right is right and wrongs no one? "Why" not go through life bearing the load which the contingency of the times has thrust upon us and bear it with honor—a credit to ourselves individually and to the profession as a whole? The time is not far distant when we as a profession will become the guiding-star of a whole nation. As sanitary humanitarians, are you in a condition or are you preparing yourself to share your portion of the burden? If not, why?

You are certainly not doing it by showing your preference for the literature contained in horse journals and agricultural magazines, when our professional ones contain so much that is not only beneficial in an educational way, but interesting not alone by its association but on account of its true worth. "Why" is it, in the face of this fact, that only one in every four North American veterinarians subscribes to and supports his own professional literature? It is true our country has been bordering on a panic which, thanks to the keen foresight and business-training of the American people, has been averted. Yet is that just cause for your making an auction mart of your profession? If not, why do you offer bargain-counter prices? Prices which you well know when once cut are so difficult to restore in times of prosperity? "Why" do veterinarians aim to establish prices for surgical work that are no just compensation for the skill required, and which cannot do otherwise than lessen the worth of the work in the eyes of laymen and the general public? "Why" will you take contract work at prices that are not half compensating, and thus lessen the volume of income to yourself individually and lower the estimate value of the work generally?

"Why" do veterinarians, many of whom have been educated at the supposedly better schools, feel that quackery is a paying branch of what would otherwise be a wholly honorable profession? "Why" do they feel that placards bearing pictures and self-laudations, wholly unprofessional in appearance and work, when they only tend to lower them in the public estimation? "Why" do we not impress upon the dairy people of this State the urgent need of stringent police measures and the enforcement of the same, that they may know all cattle brought into the State to replenish their herds are free from all infectious and contagious disease, when the losses already incurred from this source are assuming a serious aspect as regards the dairying interests, and threaten to become a barrier to the continuance of the valuable control-work now going on—work which at this time must not be stopped, and which can be best perpetuated by the veterinarians individually assisting it, for we live in deeds, not years; in thoughts, not breaths; in feelings, not in figures on a dial?

SOME OBSERVATIONS ON CONCEPTION AND PREGNANCY IN THE MARE.

By J. A. Dell, V.S.,
ANN ARBOR, MICHIGAN.

(Concluded from page 124.)

While the cessation of the periods of heat must be accepted as well-founded proof of conception, still there are cases reported where they have been said to reappear more or less regularly and still the mare be pregnant. In proof of the latter I have failed to establish anything definite. It is true that many mares have been bred to stallions in the usual way, yet given birth to foals from former service; but it is very doubtful, if allowed their freedom, that they would copulate. I have never seen nor can I find any record where mares running with a stallion have ever copulated when pregnant.

I now own a little Shetland mare, seven months pregnant, that, each day when turned into the paddock with other mares and the stallion, regularly goes toward the stallion, neighs, and shows what would ordinarily be taken as signs of heat, yet she will not receive him.

It is said that the bull, when allowed to run with the herd, refuses to give any attention to the pregnant cows, and I believe it is so with the stallion, if allowed to range with mares continuously. Even some stallions kept away as usual seem to know by instinct and refuse to serve a mare in foal.

An instance of that kind occurred in our city a few years ago. A mare supposed to be in heat was brought to be bred. When brought near the stallion she evinced marked signs of heat, yet he refused to serve her, and the owner took her away, disgusted with the stallion, yet in less than two months she gave birth to a strong, healthy foal. But I doubt if that mare had been turned with a stallion used to ranging with mares if she would have copulated.

I am of the opinion that the so-called heat is rarely much more than nervousness. With mares well broken, as most of our horses now are, and the usual amount of force, they submit to service when they would not if allowed their liberty.

Some writers have attempted to prove this as well as superfœtation by mares giving birth to a horse and a mule foal from covers several days apart; but when we remember that one heat may continue for nearly three weeks, it is safe to assume that both services were during the one heat.

Following the cessation of heat we have the material signs, such as increase in the volume of the abdomen, tendency to fatten, changes in temperament, etc., to all of which I have failed to add anything reliable. In fact, I have failed to establish anything definite from them, as food, attention, and surroundings conduce to the same conditions; and, as I have before stated, it has all but too often been the case in the past decade that a hay colt has resulted from a high-priced service.

With all due respect to our writers and teachers who place great reliance on some of the above symptoms, together with measurements of the abdomen, increase in weight, examination of the urine or examinations per rectum or vagina, or through the abdominal walls for the tumorous condition of the gravid uterus, I believe there is one, and only one, true sign of pregnancy in the mare on which the veterinarian can risk his professional opinion; that is, life in the fœtus, and it devolves upon us to discover how and how soon we can be able to detect that important period.

You are all well aware that, due to the action of the panniculus carnosus, the thickness of the walls, together with the normal sounds in the abdomen, the stethoscope, so valuable an instrument in examining the human patient, is entirely impracticable in the larger veterinary patients; neither are we able to detect anything during the early stages of pregnancy with the naked ear. Thus our observations are narrowed down to the one sensation, that of touch. Fleming gives three modes by which the fœtus may be felt in utero: "By the vagina, the rectum, or through the abdominal walls."

The first I should name as the most unsatisfactory; the straining that follows examinations of the vagina is disagreeable, to say nothing about the danger that may follow in some very sensitive mares; while I have never been able to detect anything more than the distended uterus, except in cases very near parturition, and sometimes not then, as the fœtus had settled low in the abdominal cavity, and nothing but the fluids distended that part.

That by the rectum, while much safer, is likewise very unsatisfactory. Fleming states that after three months the tumor-like gravid uterus can be felt by this means; but when we take his statement that at that time the fœtus of an ordinary sized mare is six inches or less long, that the envelopes are from four to eight times the weight of the fœtus, and that the fluids are from six to ten times its weight—surrounded by all this, covered by the walls of both uterus and rectum—the man who can detect it with certainty has a far more delicate touch than I have been able to cultivate.

If the fœtus exhibited life at that period, we would have but little difficulty in deciding; but when we are informed that the human mother first observes life in her unborn child at about four and one-half months, or midterm, how can one expect to detect it in the mare through so much intervening media at an earlier period? Besides, as we are all aware, as the fœtus grows in size its weight tends to carry it lower in the abdomen, and by the time it has acquired size and strength enough to exhibit much movement it has sunken so low that it is nearer the inferior abdominal wall than the rectum, as all of us have found who have made post-mortems on pregnant mares that were nearly half-gone. When opening the abdomen the first thing met was the gravid uterus, and this position I believe it assumes about the close of the fourth month of pregnancy, displacing all other viscera, and rests directly on the abdominal walls, and for these reasons I have found the rectal examination difficult and very unreliable.

Before entering upon modes of external examination let us first consider the position of the fœtus in utero, that we may have a better idea of what part of the fœtus we expect to meet and at what part of the maternal abdomen we shall be most liable to first feel it. I agree with all those I have consulted that the normal position of the fœtus in the mare is one or the other of the cornu, with the head directed toward the cervix, and that position I believe it maintains during its entire period of development. As proof of it, I never made a post-mortem on any pregnant mare and found it differently; also in premature births that presentation is as constant as in full-term births; and, again, in mummified, immature fœtuses that I have removed I have found them in that position That the fœtus lies on its side or back, with its hind feet extending forward into the cornu of the uterus during its development, and turns itself only at the approach of parturition, as some of our best authors state, I do not believe, for in all post-mortems I have found the fœtus resting on its abdomen with front and hind feet curled under it, and further on I will give other reasons to substantiate my theory; also that the fœtus rests more in a sitting posture until well developed—that is, its posterior extremities rest nearer the abdominal walls of the dam than the anterior.

After discarding both vaginal and rectal examinations I gave more attention to manipulating the abdomen. In this way Fleming claims it is not reliable before the seventh or eighth month, and I am not surprised that he did not detect life earlier if he followed the directions he gives. He says: "place your hand on the abdomen just in front of the mammary glands." Now, when we stop to reason, would that be the point at which the gravid uterus in its descent would be first to touch the abdominal walls? The cornu in which the fœtus develops has its anterior and posterior attachments, and in its normal state it forms the segment of a circle, the most dependent part above or anterior to the umbilicus, and is it not reasonable to suppose that as it enlarges it would settle down from that point, and in that region we must look for the earliest indications of life?

In my earliest examinations, by exercising a little patience, I found no difficulty in detecting life at seven months, the motions at that period being of the nature of a small plunge or jump; I liken them to the actions of a small pig in a sack. Taking notice of the minor motions, and making examinations of all cases I met where the time was known, I soon found at six months I could readily detect life; but the motions at that period are less strong and can be said to be a quiver or flutter, likened to a fowl in a sack.

When I became conversant with the movements of a six-months' fœtus I was led to believe that it was not for lack of movements that we could not detect life earlier, but to our inability to recognize the delicate movements. In 1894 I had mares of my own at my stables constantly, and I examined them two or three times a week, and the earliest I was able to be positive that year was five months and six days. But now I can recall observing movements earlier that I have since proved to be definite signs.

The past season I have had similar opportunities, and I began my examinations as early as three months, but was not positive with the first until the even five months; but in the second I detected movements at four months and twenty-six days, while later I was positive of movements in one at four months and nineteen days and another at four months and eighteen days. What was very interesting to me was, after making these early detections, to examine them from week to week thereafter and note the increase and strength of movements as the period increased.

The movements at four months and eighteen days vary as much from movements at five months as those from six to seven months, or seven to eight months, etc.; and, while we may never be able to detect positive life earlier than this minimum period, I do believe that with frequent opportunity for examination and the cultivation of our sense of touch we may become so well acquainted with the different movements as to be able not only to detect pregnancy, but to give a reasonable opinion as to what stage it has reached.

When making an examination I stand at the side of the mare. I prefer the left, as I seem to have a more correct touch with my right hand. I place my hand in the median line, at or just in front of the umbilicus. The very earliest movements I have felt nearly as far forward of the umbilicus as it is forward of the mammary glands.

The earliest movements I liken to the sensation we would receive by covering the palm of the hand with several folds of cloth, then touching it with the tips of the fingers of the other hand, one or two at a time, suddenly changing to the other tips, so as to give a sensation of little thumps or steps, or liken it to the feet of a cat stepping on your bed-cover, only more sudden changes. These movements, I believe, are made with the hind feet or hocks, and convince me, as I stated before, that the fœtus rests in a sitting posture and that the posterior extremities settle and reach the floor of the abdomen first.

At about five months the movements are felt further back and seem more complicated—that is, more touches as with finger-tips—and stronger, and with them we detect a slight quiver. The former, I believe, can be attributed to the enlarging and settling of the fœtus, and we get some of the movements of the fore-feet, while the quivering I believe to be the beginning of the body movements.

At six months these increase in strength, and at about that time we can detect a slight jumping sensation. The latter increases quite rapidly until, by the beginning of the seventh month, the fœtus acquires so much strength that there is little difficulty in detecting it by placing the hand on the lower part of the abdomen. During the eighth month, and sometimes earlier, by close watching we can see movements at the flanks, and these increase in force until, as many of us have observed, they seem to shake the whole body of the dam.

I believe life can be discerned a little sooner in mares that grow large early, as the muscles of the abdomen are then thinner than those that have smaller and harder abdomens. As the best time of day to examine, I have failed to discern much difference; the most of mine have been in the evening after feeding and watering. I have had my best success if I could catch them lying and examine them just as they got on their feet. After drinking of cold water or eating of food, particularly if of a nature to generate much gas, I find a good time. One condition I have observed—that is, if I find marked peristalsis I do not have to wait long to get movements if the fœtus be sufficiently developed.

ABORTION IN DOMESTICATED ANIMALS.

By Charles F. Dawson,
VETERINARY INSPECTOR, BUREAU OF ANIMAL INDUSTRY.

(Concluded from page 127.)

The earliest accounts of infectious abortion in the domesticated animals were written as far back as the third century before the Christian era; from that early time down to the present the disease has existed in a more or less severe form, often amounting almost to a scourge in stock-raising countries, and has received the attention of the ablest veterinarians of all times.

Professor Nocard made an extended study of the subject, and his report to the French Department of Agriculture shows him to be a strong advocate of the theory of the infectious nature of the disease. Another French veterinarian, Professor Lebat, showed his belief in the infection-theory by treating a flock of aborting ewes by means of local applications of antiseptics to the vulvæ of all the pregnant ones.[1]

In the report of the United States Department of Agriculture for 1883 Dr. D. E. Salmon wrote as follows: "This disease, which evidently depends upon some form of contagion for its causation, has been estimated to produce an annual loss in the State of New York alone of several millions of dollars. If, as seems likely from our general knowledge of the contagion, the germs of this disease are first scattered upon the stall-floors and upon the ground where the cattle run, to be taken into the system by soiled food, by the dust which rises and floats in the air, or in some similar way, then a thorough and continuous disinfection of the stables and runs should have a very marked effect in controlling it. In one rather large and plainly infected herd I have put this idea into practice with the happiest results, the disinfectant being a 1 per cent. solution of sulphuric acid."

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[1] Recueil de Méd. Vétérinaire, September 15, 1896.

Judging from the numerous articles upon the subject which have appeared in the *Agricultural Journal* of Cape Colony, Africa, the disease must be quite common in that country. In one of these articles[1] Mr. Hutcheon, the Colonial veterinary surgeon, says in discussing the probability of the infectious nature of the disease: "Practically, however, all cases of abortion should be treated as if it were a contagious disease, for while many individual cases may occur which do not affect others, it is an undoubted fact that abortion very often becomes infectious, and, if precautions to prevent its spread are not taken, serious losses are certain to follow."

An important paper upon the subject of infectious abortion was written by Dr. W. L. Williams,[2] who was appointed by the department to investigate the disease. Dr. Williams tabulates ten cases in which he gives the details of certain experiments undertaken to prove the infectiousness of material removed from the vaginæ of aborting mares. His experiments fail generally, however, to prove what he wished, he having caused only one animal to abort under conditions which could leave little doubt that the abortion was caused by the introduction of utero-vaginal discharges into the vulva of another pregnant mare. This mare aborted thirty-one days after. The period of incubation here seems to be a great drawback to the theory he advocates. It is difficult to understand why the material he introduced into the vulva did not manifest its pathogenic property in a shorter space of time. Dr. Williams states that the weather was unprecedentedly warm during the experimentation. This being the case, and as no mention is made of any extra precautions taken to prevent the multiplication of saprophytic bacteria in the material used, could we not reason that the hypothetical organism of abortion is one which quickly loses its virulence when associated with rapidly growing saprophytes in material rich in organic matter? In the one case where he produced abortion mention is made that the material was immediately transferred from the uterus and vagina to the vulva of the experimental mare. This one successful experiment in ten is, however, offset by a failure to produce abortion by the use of some of the same material under the same conditions in another mare. Could not this failure be explained on the theory of lack of susceptibility? Could not his failures, generally, be explained on the same theory? All the animals used, with one exception, and the author does not say whether this exception was the one in which abortion was induced, were from a herd of unbroken Texas mares free from abortion. The excepted mare had been in the State of Illinois, where the experiments were carried on, for some time previous to the introduction of the others, and had been in foal twice by a native horse. Might not the results have been different if the experimental animals had been selected at random from native Illinois stock?

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[1] Agricultural Journal, vol. iii. No. 13, p. 326.

[2] Sixth and Seventh Annual Reports of Bureau of Animal Industry, Department of Agriculture, pp. 449-456.

Bernes[1] reports an outbreak of abortion in a herd of cows which he successfully combated by measures based on the assumption that the disease was caused by infection. By removing the affected and healthy animals to separate buildings and thoroughly cleansing and disinfecting the building in which the outbreak occurred no more abortions took place. All the cows were served by the same bull, and one of them had a vaginal discharge a few days after being served. Indications point to the probability in this outbreak of infection having been carried by the bull. The number of exposed animals was quite large—fifty-two in number—while the reported number of abortions was only nine.

We have recorded many instances where this disease, like many others, raged for a while and then disappeared spontaneously. Would not this outbreak have conformed to this rule regardless of the sanitary measures adopted? It seems plausible that others should have aborted, did we not know that an outbreak of abortion is somewhat self-limited in character. It is very probable that the specific agent is one which loses part of its virulence from contact with the blood and utero-vaginal secretions. That the glands in the mucous membrane secrete a fluid which has germicidal properties seems plausible, from the fact that others, as well as myself, have failed to get any growth in the ordinary bacterial culture-media after placing in it material taken from the uteri of animals in health, to which the male had not recently had access.

Dr. T. J. Turner,[2] in his article upon infectious abortion in mares, records the results of certain experiments made upon pregnant mares to produce abortion. On June 6th Dr. Turner introduced into the system (method not given) of a pregnant mare near term a culture made from diseased fœtal membranes from a case of abortion. The mare foaled the following night. Dr. Turner says:

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[1] Journal of Com. Path. and Therapeutics, 1891, vol. iv. p. 167.

[2] The Veterinary Journal, vol. xxxvii. 1893.

"On June 29th the foal showed signs of joint-trouble in the right knee, and on July 1st the hock-joint was as large as a man's head. Thus, from this experiment, almost just begun, we might say, Do we produce the disease in a colt that when born was apparently in health, and that, too, after the inoculation had only been introduced a few hours? Another mare, a dun, inoculated with a culture from the blood of Biddy Mac's colt (culture used in the other experiment was from fœtal membrane of same case. C. F. D.) on the 20th day of June, gave birth to a dead foal. This was an abortion, as evidenced by the diseased placenta. Hence we see that from these two inoculations with cultures we have produced both the diseases —abortion and joint-trouble. The germs causing these two diseases are the same, as shown under the microscope. That these two maladies are one and the same disease, but differently manifested, there is no doubt."

In the absence of more details concerning the experiments made by Dr. Turner we cannot accept his work as conclusive evidence that the case of abortion which took place, apparently the result of the introduction into the system of a pregnant mare of a culture of bacteria from the blood of a dead fœtus, was due to a specific organism. It is possible that the severe arthritis from which the offspring of the first experimental mare suffered may, as he claims, be due to the presence in the affected joints of an organism identical with the one he claims was the cause of abortion in the other mare. His statement claiming such identity, however, must be sustained by more evidence than a similarity in the morphology of the organisms.

Dr. F. L. Kilborne[1] investigated an outbreak of abortion in the mares of a large stud near Franklin, Pa. He says in his report: "No history of any introduction of the infection from without could be obtained beyond the fact that mares were daily being received at the stock-farm from various parts of the State, to be bred to the stallions of the stud. But as far as could be ascertained no mare had been received from any stable in which abortions had previously occurred. The veterinarian in charge of the stables had taken the usual precaution to remove the aborting mares as soon as discovered and to disinfect the stall. Such mares were disinfected per vaginam by repeated injections of a diluted solution of corrosive sublimate, 1 part to 10,000 of water, and the external organs, tail, and hind limbs sponged over with a strong solution, 1 part to 1500 of water. The stable had also been repeatedly fumigated with burning sulphur. Fluid extract of black-haw (*Viburnum prunifolium*) in half-ounce doses once daily had been given the pregnant mares during the month preceding February 5th. In this outbreak the first case of abortion occurred on December 2d, the birth being premature by 109 days. Up to the time of Dr. Kilborne's first visit—February 5th—ten cases had occurred, ranging in prematurity from 23 to 195 days. In addition to the sanitary measures already practised by the resident veterinarian, Dr. Kilborne advised a more thorough disinfection of the stalls with a 2 per cent. solution of sulphuric acid. The abortions ceased from January 29th to February 15th, when another outbreak occurred, lasting till March 4th, six mares having aborted. It was then decided to take additional precautionary measures to check the outbreak. All pregnant mares were removed to another building. The floors of the stalls were thoroughly cleansed and disinfected with a 2 per cent. solution of sulphuric acid twice a week. The external genitals and tail were washed daily with bichloride of mercury solution. Intravaginal injections of the mercury solution caused the animals to strain, and were discontinued. Half the mares were given once daily one-half ounce of the fluid extract of black-haw in addition to the sanitary measures taken. The remaining half of the mares received in the feed one heaping teaspoonful of the following powder-mixture twice daily for two weeks, when it was omitted for four or five days: chlorate of potassium, phosphate of sodium, of each one pound; and sulphate of quinia, three ounces. This treatment and the rigid sanitary measures seem to have quelled the outbreak, no more abortions occurring till in the fall, when three of the mares brought in from the pasture and stalled in a small barn with several others aborted. This new outbreak was checked by a repetition of the treatment and disinfection measures employed in the former outbreaks.

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[1] Bulletin No. 3, Bureau of Animal Industry, Department of Agriculture.

A bacterial culture was made from the vaginal mucous membrane of one of the cases by Dr. Kilborne, and experiments were projected by Dr. Theobald Smith to determine the presence in it of a bacterium which had pathogenic properties. The culture obtained proved upon examination to contain only a single species, a short motile bacillus. Cultures in peptone-bouillon were made from the original culture, and were injected into the vagina of a mare nine months pregnant, with the result that in twenty-four hours the mare had an abundant purulent vaginal discharge. The discharge ceased in two days. This experiment was spoiled by the mare developing a severe case of influenza. She foaled in about a week after the injection, probably the result of the attack of influenza.

Intravaginal injections in several pregnant cows did not give any positive results, with the exception of a temporary vaginal discharge.

Intravenous injections of this bacillus into hogs caused only a temporary anorexia. Inoculations made into rabbits of this bacillus proved fatal in three out of four cases, the animals dying of a disease simulating hog-cholera in rabbits. Dr. Smith inclines to the belief that on account of its pathogenic properties and its cultural characters that the organism obtained from the case of abortion in a mare is closely related to the bacillus of hog-cholera. He says,[1] in discussing its peculiarities: "Another fact of interest in connection with this pathogenic bacillus is its close resemblance to the hog-cholera bacillus . . . and if the bacillus in question had been sent me as having come from swine I should not have hesitated to regard it as a hog-cholera bacillus of rather feeble virulence, and possessing some slight differential characters from the virulent form."

In order to determine whether this bacillus is present in the genital passages of healthy pregnant and non-pregnant mares, Dr. V. A. Moore made a series of observations upon the vaginal secretions of five healthy mares, one of which was pregnant. These observations are recorded in Dr. Smith's report. Dr. Moore isolated eleven species of bacteria of the following genera: two species of non-motile bacilli; four species of micrococci; and five species of streptococci. Neither of the species of bacilli had characters which would show they were identical with the bacillus of which Dr. Smith wrote.

Recognizing the importance of having an intimate acquaintance with the normal bacterial flora of the genital passages as a prerequisite for the future investigation of infectious abortion in animals, I, at the suggestion of Dr. V. A. Moore, undertook a series of observations to determine those forms normally present in the vaginæ of cows.[2]

My method for collecting the vaginal secretions was as follows: a cotton applicator, made by twisting absorbent cotton round the roughened end of a piece of stout copper wire, was thrust into a test-tube through its cotton-wool stopper. The whole was placed in a sterilizer kept at 140° C. for one hour. This proved an excellent means of transporting the secretions free from contamination. When the sample was to be taken the external genitals and under the surface of the tail were thoroughly washed with a 2½ per cent. solution of carbolic acid, followed by a bath of sterilized distilled water and dried by means of sterilized cotton-wool. An assistant held the tail to one side, the labia were separated, and a speculum, anointed with carbolized vaseline, was introduced and held in place by an assistant. By opening the speculum the interior of the vagina and the os uteri could be plainly seen, and the applicator could be applied to the parts and bring away secretions it had absorbed during contact. Upon reaching the laboratory the applicator was removed from the tube, and twirled around in a flask of about 50 c.c. of melted agar. By this means any bacteria which were removed from the vagina in the meshes of the cotton were washed out. The infected agar was then poured into a double dish ten inches in diameter and similar to the ordinary Petri pattern. By the use of this size dish ample room was given for the development of a large number of different organisms from a single inoculation. From the large number of species from bacteria which these observations show are present in the bovine vagina, and the infrequency of the occurrence of the same species in different observations, it would seem that the flora of the bovine vagina is either very extensive or that the presence of such large numbers of species is accidental.

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[1] Bulletin No. 3, Bureau of Animal Industry, Department of Agriculture, 1893, p. 58.

[2] The description of the biologic characters and the drawings of these organisms are reserved for a future communication.

If we admit that they gain entrance to the vagina from the ventral surfaces of the tail and from the soiled vulvar surfaces, it would seem that most of them came from the feces.

Upon reflection we find that the rumen is a most admirable bacterial incubator because of the fact that in this portion of the alimentary canal the very conditions exist which are necessary for the development of bacteria—*i. e.*, warmth, moisture, and an alkaline reaction. Flourens has shown that fluids pass with facility from the rumen into the other three stomach divisions, and might we not, therefore, expect to find a very large number of species of bacteria by this means washed from the stomach into the intestine and appearing in the feces of these animals?

It is only in the abomasum, fourth or true stomach, that we find conditions that are inhibitive to the multiplication of swine-bacteria. When a ruminant swallows water some of it passes without much delay into all four of the stomach-divisions. It is probable that many of the bacteria are thus washed into the fourth stomach, and that their sojourn there is of short duration, many of them passing through the pylorus with the chyme into the intestine, where conditions are more favorable for their multiplication.

It would, therefore, seem that the number of species to be found in the bovine vagina is limited in a measure by the number of species swallowed with the food.

The observations were made upon perfectly healthy cows which were not known to have been in contact with a male for some time previous to my operations.

By the method given above forty-five species of bacteria of the following genera were studied: twenty-one species of bacilli, thirteen of which were motile, two of them being spore-producers, and eight of which were non-motile, two of these being spore-producers; seven species of micrococci, seven species of diplococci, eight species of staphylococci, and one streptococcus.

ABSTRACT OF PAPER ON ABORTION.[1]

By R. J. MacGuire, V.S.,
CONCORD, N. H.

First referring to the disposition of most cattle-owners to ignore veterinary assistance, which has contributed to its extension, perpetuation, and great losses, and passing rapidly over the accidental traumatic causes, he dealt more particularly with the form recognized as infectious and the period in the mare most often noted—the 120th to the 270th day; in the cow from the 150th to the 210th day. As to its infectious character he quoted from the researches of the Royal Agricultural Society of England, which recognized a specific cause for the trouble; also to Denmark's investigation of this disease through the veterinary profession and their conclusions as to its infectious character, noting the conclusions of Ex-State Veterinarian Turner, of Missouri, as to its micro-organismal origin. His own conclusions were given as to bulls being the most potent method of transmission through their covering cows which had aborted, and then transmitting it to others through service of other animals; the absence of premonitory symptoms in the cow and the only noticeable ones of slight uneasiness, stamping, and switching of tail in mares. As to treatment, the wisdom of local disinfection through destruction of the young fœtal membranes and local cleansing of the parts daily of the aborting animals with a 1 per cent. solution of carbolic acid, a 1 to 1000 parts solution of corrosive sublimate, or a 2 per cent. solution of creolin; separation of the sick from the well, though he thought this was of little real value on the average farm, owing to the lack of proper accommodations for carrying it out. He urged suitable legislation looking to its control.

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[1] Read before the New Hampshire Veterinary Medical Association, October 8, 1896.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS,
PRINCETON, N. J.

PECTORAL FORM OF SEPTICÆMIA HEMORRHAGICA. According to the investigation of Van Eecke, in the last six months a contagious cattle-disease broke out in the districts of Bintenzorg and Mt. Connelis, which caused many deaths. The government veterinarian Fischer published a detailed report of the same which appeared in the *Veeartsenijkundige Bladen.*

The disease assumed here and there a malignant character. In the district of Tjibaroesa, where the disease seems to have first appeared, of about 500 buffaloes 100 died on a single ranch within a short time (September to October), while on many other ranches the death-rate reached 10 per cent. The total number of deaths in the department mentioned was estimated at upward of 700 out of a total of 14,000 buffaloes. From the nature of the case, such an estimate is too low. The interests of the cattle-owners demanded that the existence of the disease be kept secret. Many of the infected animals were slain in the early stages in order to place them on the market. Herr Fischer, who made the post-mortem examination of the first case, makes the following report: The animals lay apathetic on the ground and refused food and drink; wounds of any kind were not observed. The nutrition of the young animals was very good; breathing was rapid and labored; the pulse was increased and weak. The temperature of the body was to the touch considerably elevated. The nostrils were dry; the eyes appeared sunken, and the conjunctivæ were colored red; he noticed tears flowing from the eyes. With the consent of the owner, the animal was killed that a post-mortem might be held. On account of the good condition of the animal only a little dark blood flowed off. When the skin was removed minute hemorrhages presented over the whole body, being especially prominent in the muscles, which were dry to the touch. When the abdominal cavity was opened nothing abnormal in the position of the intestines was noticed. The injection of the bloodvessels was especially marked. The thoracic cavity, on the other hand, showed important changes. On opening the cavity about one litre of clear yellow serous fluid flowed out. This quantity was considerably increased when a sero-fibrous layer, 2 to 3 cm. thick, was removed from the rib-wall. This layer formed an inner connection between the rib-wall and the lung, and covered all parts of the pleura to a greater or less extent, except the diaphragm, which with the exception of red spots and stripes upon it was normal. The sero-fibrous layer, which was at first 5 cm. thick, decreased in consequence of the escape of fluid to 1 mm. The lungs, after the layer was removed, were found spotted and striped dark red. This was most noticeable on the front half. They were not shrunken, but very friable and tore easily, a serous bloody fluid flowing off. On the inside the lung presented a marbled appearance which was caused chiefly by obtrusion of the interstitial tissues. Light yellow streaks were found through the whole lung, the thickness of which varied between 2 mm. and 1½ cm. On pressure liquid exuded from them and the thickness was reduced to 1 mm. or less. The tracheal and bronchial mucous membrane was dark red over the whole surface and covered with a foul-looking layer of slime. The mucous membrane of the mouth and nose was somewhat injected with blood, that of the throat a dark color. The pericardium contained a small quantity of liquid, while the peri-, epi-, and endocardium showed dark-red spots. The wall of the heart was flabby and the cavities filled with large white coagulations which were floating in the dark-colored blood. The coagulations extended to the large cavities. The pouch and stomach were filled with free, hard food-stuff. The mucous membrane of the intestines was somewhat hyperæmic, the contents thin. The capsule of the spleen showed some spots. The spleen was not enlarged. The liver was slightly spotted, as were also the kidneys, but otherwise the latter were normal. The chylous glands of the intestines were somewhat enlarged and exuded liquid when cut. The bladder was normal. The provisional diagnosis was a pectoral form of hemorrhagic septicæmia. In the course of the contagion more than twenty post-mortems were held. In all were found to a greater or less extent the deviations in the thoracic cavity mentioned above. When these were slight, changes in the abdominal cavity were marked. Here hyperæmia and swelling of the mucous membrane of the whole digestive tract were present. In places a peeling off of the epithelium was noticeable, but without ulcers and not affecting the follicular apparatus. The first three stomachs were filled with hard, dry food, and the intestines with thin pappy matter. The peritoneum had a spotted appearance, yet even where the abdominal cavity was most severely affected the color of the intestines was such as to exclude all possibility of splenic fever. The liver was normal in size and dark-colored, spotted, and very brittle. The gall-bladder was spotted dark-red and filled with dark gall. The spleen was not enlarged, of normal consistency, with the capsule spotted dark-red. The kidneys, of normal size, were dark-red with black spots here and there. The mucous membrane of the genito-urinary apparatus was spotted and striped with red. The urine was not bloody. Besides the above-mentioned, other forms of the disease appeared which were given various names by the people. Fischer saw only a couple of these cases. They were marked by a severe œdema of the subcuticle which was present on the neck, over the breast and belly and a portion of the limbs. These appearances agree with those of the cutaneous form of Bollinger's cattle epidemic, which was the subject of a prior investigation by Van Eecke. The appearance and disappearance of the œdema contemporaneously with the pectoral and abdominal form, as well as the striking likeness in the conditions on post-mortem examination, caused Fischer to incline to the opinion that they are connected etiologically with each other and must be considered as septicæmia hemorrhagica. As soon as a favorable opportunity offered to send some fresh material to the laboratory for investigation, use was made of it by the officials in charge. The material received was examined by Van Eecke, from whose results we take the following: The case under consideration was one in which a diagnosis of pectoral form of septicæmia hemorrhagica had been made. The material for investigation reached the laboratory a couple of hours after the post-mortem, and consisted of blood from the large vessels and a piece of the sero-fibrinous mass, described above, from the thoracic cavity. A very small quantity of the blood was injected in the skin of a rabbit. The following day the animal was found dead. On examination the condition was the same as Van Eecke has described. Although it was a case of the pectoral form of the disease, no important changes in the pectoral organs could be demonstrated. From the blood of the original buffalo, as well as from the blood in the organs of the rabbit, microbes of septicæmia hemorrhagica were cultivated and their identity established by continued culture- and infection-tests. Through lack of rabbits no further tests could be made with these animals. Later, however, some of these animals fell a victim to this disease in consequence of accidental infection. They were probably infected by the excrement of artificially-infected doves whose cages hung above the rabbit warren. On post-mortem examination the following conditions were noted: subcutaneous œdema in the submaxillary and neck region (but only in two of the four animals), combined with hemorrhages in the region of the shoulder and groin. A moderate quantity of clear, serous fluid was found in the peritoneal and pleural cavities, and a considerable quantity of the same fluid in the pericardial cavity. The heart had stopped beating in diastole. Hemorrhage and œdema were present in the lungs, which sunk in water. Tracheitis hemorrhagica present. The spleen of normal consistency, but somewhat enlarged; hyperæmia of the liver; swelling and œdema in the kidneys; hyperæmia in the mucous membrane of the œsophagus, stomach, and duodenum. The small intestines contained a light yellow, slimy matter. The rectum was empty, or contained thick, greenish-brown feces. The retroperitoneal glands swollen and sappy. The bladder distended with muddy urine. In the blood of all the animals the presence of septicæmia hemorrhagica microbes was demonstrated not only microscopically, but also by culture- and infection-tests. The infection-tests were made especially on turtle-doves (*Turtur tigrimis* and *bitorquatus*), animals of little value and easily procured, which react in a typical manner after intra-muscular injection of the virus. The serous fluid from the sero-fibrinous mass taken from the pectoral cavity of a buffalo was also injected into a turtle-dove, with positive result. Under the microscope this fluid seemed to contain the bacteria which cause the typical discoloration, in great mass. These were also cultivated and other animals infected with the cultures with positive result. In some cases pectoral changes were found after death, but in the majority of cases none. When material from a dove that had died of the pectoral form was injected into another dove the latter almost always showed the pure septicæmic form. Even in the earlier tests also, where the original infectious matter was taken not from the pectoral but from the cutaneous form of the disease, Van Eecke found in single cases some sharply-defined bloody spots in the lungs which otherwise showed no deviation from those of healthy doves.

Tests were also made on mice, rats, sparrows, and a pair of goats. The mice died in from one to two days after the injection. In the case of the rats the result was less satisfactory Some were infected by subcutaneous injections, others through the food. They died after one to three days, and showed on examination the phenomenon of pure septicæmia hemorrhagica. But the investigator did not succeed in finding the specific microbes. The sparrow died within twenty-four hours after an intra-muscular injection of 0.15 cm. of the bouillon-culture. It was followed by marked change in both lungs and the hydropericardium; many septicæmia hemorrhagica bacilli were found in the blood with the microscope. One of the goats was infected subcutaneously with an agar-culture divided in bouillon from the serum of a buffalo; the other with the blood of one of the doves which had died from the disease. Both showed only a slight swelling at the place of injection. As bases for cultures alkali pepton bouillon and with it "glycerin-agar" were used mostly. Of importance, with a view to sending out plates of material for investigation from the laboratory, is the fact that from the blood and the serous fluid of the buffalo which is preserved at a temperature of 15°–20°, virulent septicæmia hemorrhagica microbes can be obtained after a week. From these investigations of Fischer and Van Eecke, the assertion of the latter, that much of what is generally regarded here in the country as cattle-pest is in fact nothing but septicæmia hemorrhagica, has not yet been fully proven. What Duessen wrote about the contemporaneous appearance of œdematous, gastric, and pneumonic forms of the cattle-pest should be compared with Fischer's report, and one will come to the conclusion that both have had to do with the same disease.—*Veeartsenijkundige Bladen voor mederlansch-indie*, vol. ix. No. 4.

The *Clinica Veterinaria*, of Milan, records the diagnosis of fracture of the sesamoid bones with the Röntgen rays.

FRENCH.

UNDER THE DIRECTION OF ALEXANDER GLASS, V.S.,
PHILADELPHIA, PA.

A REPORT ON THE EXPULSION OF THE ŒSTRUS EQUI LARVA (BOTS) FROM THE HORSE. Professor Perroncito, of the Veterinary College of Turin, thinks that the larva of the œstrus can be expelled from the horse by means of bisulphide of carbon administered in gelatin capsules. The antiparasitic properties of the drug have been fully demonstrated in the destruction of the phylloxerilla.

There have been two reports made on this subject by Dr. Tosegni, veterinarian to the breeding establishment of Grosseton, which are very interesting. In the first report Dr. Tosegni picked out fifteen colts whose general condition indicated the presence of the œstrus larva, which was further confirmed by the fact that they passed several of them per anum. A number of capsules, each containing 12 grammes of bisulphide of carbon, were prepared; four were given to each colt, making in all 48 grammes, and they were fed their ordinary quantity of food; on the following day they were each given a purge of castor-oil. One hour after the administration of the medicine they all had an abundant secretion of saliva and constant movements of the muscles of mastication; three of the colts showed considerable nervous excitement, and all showed more or less depression some time after the drug had been administered. Three days after the administration of the capsules the expulsion of the larva commenced. The parasites were all dead when expelled. Each colt passed numbers varying from 15 to 56, the whole number passed by the fifteen colts being 592.

A second report by the same veterinarian, in which he followed the same treatment in six colts, but from his former experience when he found all the larva dead the purgative was omitted. On the third day the larva commenced to pass from the animals, and varied in number from 3 to 105 for each animal.

Another Italian veterinarian, Dr. Bugarli, followed the bisulphide of carbon treatment in two horses that were out of condition and showed want of nutrition and several of the larvæ were passed per rectum. He administered three capsules of bisulphide of carbon each containing 10 grammes of the drug, and followed it up the next day by a purgative. One horse passed 238 and the other 23.

These observations prove the efficacy of bisulphide of carbon in expelling the œstrus larvæ from the stomach, and from the above experience Dr. Perroncito thiks that the dose should be 10 grammes for horses and 8 for colts, administered in gelatin capsules. —*Giornaledella Reale Societa ed Academia Veterinaria Italiana,* August, 1896.

The Cook County (Illinois) Agricultural Society strongly indorses the movement to establish a State Veterinary College, and recommends its location in Chicago, owing to the great clinical facilities offered.

REPORTS OF CASES.

I. FOOT-LAMENESS. II. FECAL STASIS.

By H. P. Miller,
STUDENT, OHIO STATE UNIVERSITY HOSPITAL.

I. *Subject:* Bay draught-mare. *History:* Lameness developed suddenly while at work; grew steadily worse. *Symptoms:* Limb free from swelling or tenderness to the touch; animal reluctant to place weight upon the foot; pulsation in bloodvessels leading to the foot well marked. On removal of shoe and paring out of sole a large corn was disclosed.

II. *Subject:* St. Bernard dog. *History:* Persistent constipation for three weeks; belonging to a physician, a large number of cathartic preparations had been given, with no results. *Symptoms:* Animal emaciated and weak, a hard mass about the size of two fists could be felt in the region of the flank. *Treatment:* Warm-water injections administered per rectum through a rubber tube attached to a can, the latter placed at an elevation of ten feet. Continuous flow until twelve gallons were allowed to flow into the rectum, with manipulation externally of the mass; only a few fragments came away the first day. After four consecutive days' treatment by irrigation the mass disintegrated and was flushed out. Its removal was followed by a return of appetite and favorable symptoms leading to recovery promised.

ACTINOMYCOSIS ON THE FINGER, TAKEN FROM A CALF.

By J. R. Snively, V.S.,
LANARK, ILL.

On October 22d last I was called to see a case of actinomycosis in a four-months-old calf. In catching the calf I was unfortunate enough to have quite a large piece of the skin knocked off my right forefinger. I opened the abscess and treated it; afterward washed my hands in a 3 per cent. solution of creolin, but the germ must have found entrance. The wound seemed to heal nicely for about ten days, when two small, red-looking tumors began growing. I cauterized these with carbolic acid, which seemed to have no effect, and they kept growing. I then cauterized them with antimony chloride and at the same time took twice daily 5 grains iodide of potash with good results. About one month after they had healed they commenced to itch and raise up again. This time I used 10 grains twice a day of the iodide of potash, and have not been troubled with them since.

RETENTION OF FŒTUS IN A SHEEP.

By E. P. Niles, D.V.M.,
VIRGINIA.

I report herewith a case of retention of a fœtus in a sheep, not because similar cases are not on record, but because of the great length of time which the fœtus was retained.

Subject: A Dorset ewe, the property of the college farm. At one year of age it was thought that the ewe was pregnant, but date of breeding was not known. Some time later, however, the ewe showed less signs of being pregnant, and the manager, thinking that he had been mistaken about the ewe being in lamb, tried in vain to breed her for three years afterward, until February 24, 1897, the ewe being fat, she was slaughtered for mutton. Upon opening the abdominal cavity the butcher noticed that the uterus contained fluid, and was abnormally attached to the wall of the abdomen and a fold of the large intestine. What specially attracted his attention, however, was an unusually large nodule near one of the cornua of the uterus caused by the œsophagostoma columbianum. Being notified of the above condition I at once visited the slaughter-house. Upon opening the uterus a considerable quantity of a thin, fetid, apparently purulent fluid escaped. The os was firmly closed, and crowded well back against the os a number of small, flat bones (evidently the bones of the head), about the size of one's finger nail, were found.

The most remarkable thing in connection with this case is that fecundation took place three years ago, and that the ewe at no time showed any signs of parturition. Neither was the general health of the ewe at any time impaired to a sufficient extent to attract the attention of the attendants. At the time of slaughter she was exceedingly fat, and when hanging in the slaughter-house made as pretty mutton as one would wish to see. The carcass was condemned as unfit for human food.

CYSTOMA DERMALIS.

By L. E. Willyoung, D.V.S.,
BUFFALO, N. Y.

Case I. *Subject:* Cross-bred mastiff and hound, three years of age. *History:* Was unobtainable in detail, but swelling was present for over a year; opened repeatedly, always refilling again.

Entered at hospital February 1, 1897. Examination revealed a soft pendulous mass devoid of hair, with numerous old cicatrices on surface. Mass measuring over sixteen inches in circumference at its largest part, with a base attachment on the posterior aspect of the ulna measuring three and a half inches.

Fig. 1.

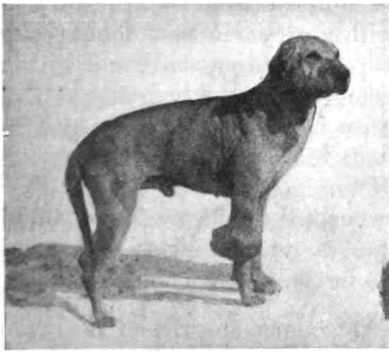
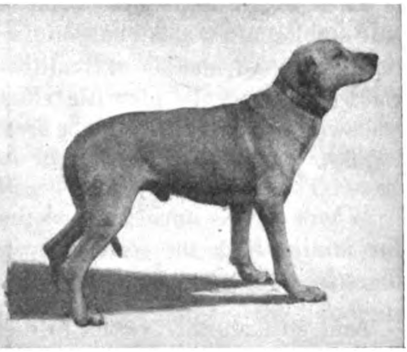


Fig. 2.



On February 4th the dog was prepared for operation: a 5 per cent. solution of eucaine (methyl-ester) was injected hypodermatically and the mass removed, after making an elliptical incision on each side of the mass, vessels ligated, and skin sutured with gut. Borated gauze and iodoform dressing applied.

Upon dissection of cyst it was found to contain thirty-seven ounces of albuminous, straw-colored fluid, of alkaline reaction. Interior of cyst having numerous distinct cavities, walls of which consisted of fibro-cellular tissue, with endothelial lining. Weight of entire mass two and a half pounds.

Fig. 1 represents before operation. Fig. 2 fourteen days after operation, cicatrization nearly complete.

Eucaine was found to be an admirable substitute for cocaine, as no after-effects are noted from its use similar to the latter, while it is cheap and efficacious.

CASE II. *Subject:* A spaniel puppy, six months of age. Convulsions due to intestinal irritation; persistent spasms and periods of complete coma, approaching at intervals of four to five hours. Duration five days. Elixir of bromide of potassium and chloral hydrate, with but temporary success, followed by a hypodermatic injection of $\frac{1}{20}$ grain apomorphine. Through the emesis following three plum-stones were ejected, with partial abatement of convulsions. Two days later a 2-grain hydrarg. pill was administered, when in twenty-four hours three more stones were ejected per rectum and a complete abatement of the symptoms followed.

It was found that the puppy had been fed canned plums a few days previous to the attacks.

Those cases of painful forms of influenza seen so frequently in sale-stables, often as an enzoötic, with great soreness of the muscles on motion, œdematous extremities painful to pressure, and with a strong tendency to pleuritic effusions, are quickly relieved and the swellings dissipated by the free use of salicylates combined with iodides.

Where corn is burnt for fuel the charred grains are found useful for mixing with the food of swine, as charcoal helps to control digestive derangements incidental to fermentation of food-products.

And still another victim to the infectious proprietary medicine mania blooms forth in Greater New York, where he hopes to emulate the father of humbugs, the late P. T. Barnum, and where he believes a confiding public is standing with open mouths and outstretched hands to praise and purchase his "nothing-ever-produced-like-them" nostrums. The flood-tide is on, the tidal-wave return is gathering, and the shores will be covered with the wrecks of these Mulberry Sellers schemes.

A so-called colored veterinary dentist suddenly disappeared from Pittsburg when he learned through a member of the State Board of Veterinary Medical Examiners that a probable wrestle in the Allegheny County courts confronted him.

Another veterinarian of Western Pennsylvania has become a victim of the proprietary medicine mania. As yet the attack is only mild, attaining a cure-all healing ointment. Only wait until the bubble bursts.

EDITORIAL.

A WORD AS TO LEGISLATION.

We hear and receive many warm commendations on the progress of veterinary legislation in Pennsylvania, and we fear that there is a growing impression that we are specially favored in the Keystone State. We do not want to discourage any of the workers in sister States, but we feel it incumbent to say that we have learned well the adage that "God helps those who help themselves." Every concession in Pennsylvania has been won after a long, earnest, and persistent battle. The veterinary profession of the Keystone State has a number of tireless leaders, full of energy and determination, aided and seconded by a united profession, ever ready to give personal and financial assistance. The battles have been fought to win, and well may the profession of this State be proud of the enactments engrafted upon the State statutes. The annual meeting of the Association just closed was one of the most fruitful ever held, and the members determined there to again urge greater assistance to the State Live-stock Sanitary Board and to join the State Grange and dairymen in securing the passage of a law requiring that animals entering our State to replenish our dairies shall have been tested or shall be submitted to a test. They voted and paid over to the State Board of Veterinary Medical Examiners one hundred and fifty dollars to be used in pressing prosecutions of violations of the State Acts relative to the practice of veterinary science. It is this plan, this persistent and ever-at-it method, that counts; and as it wins in Pennsylvania, it will win in any other State, and we most earnestly commend the profession of other States to get together, work in unison, determine just what you want and need, and go in and win.

PROFESSOR BANG'S VIEWS.

So much has been said on the public platform, so much has been published in the daily press relative to the conclusions reached upon bovine tuberculosis by Professor Bang in Denmark, that we deem it wise and just to all concerned to publish in this number a carefully prepared abstract by one who has for years studied the work and investigations of Professor Bang, and who has been in correspondence with him, and is therefore well fitted to quote his views accurately and thus enable our readers to better answer many of those who are quoting Professor Bang in such a way as to unfairly and improperly influence the minds of many who are seeking light on this subject through the veterinarian.

IMPORTANT ANNOUNCEMENT.

THE JOURNAL is happy to have the privilege of announcing that before October 1, 1897, there will be issued by one of America's leading veterinarians a complete work on veterinary sanitary medicine, including meat- and milk-inspection. There will be about forty of the various infectious and contagious diseases taken up, involving the equine, bovine, ovine, porcine, canine, and feline species of animals, and reference to the leading scourges of fowls. This book will be broad, comprehensive, and up to date in every line of this work, and will be a complete guide and text-book in the field of veterinary sanitary medicine.

A WORD TO THE SOUTH—A THOUGHT FOR THE NORTH.

NASHVILLE, the mecca of 1897, is now before us, and the time for completion of all the details of our programme and convention will be all too short to make out of our gathering the most that should result from our pilgrimage to Southern climes. While we shall enjoy every hospitable privilege and courtesy afforded us by our Southern friends and colleagues, there must be borne in mind that our chief purpose in turning our faces southward from every portion of North America is to make, above all, an opening era of progress in this new and promising field. Every line possible must be thrown out to secure all the advantages within reach in adding to the measure of recognition and support of our fellow-practitioners in that territory; and the good influences exercised by our Association in other sections of our country must be redoubled there, or our mission will be only half accomplished. The present scattered locations of the Southern veterinarians will make their labors hard to perform, and the members from the North will bear this in mind. The latter will, therefore, appreciate the fact that this imposes upon them an extra duty of aiding in every way and seconding every effort promptly and to the uttermost, when solicited by their Southern colleagues, and thus assure them that our chief purpose and aim will be to make doubly sure the position of our profession in the forefront of the progress of the New South. Bear in mind that Nashville is not situated as are Buffalo, Boston, and Philadelphia, and that our sojourn there in 1897 will be preparatory for a future meeting still further south, as were the early meetings in Boston and Philadelphia. Let everyone give something as a contribution to this meeting, to the programme, to our ever-zealous, hard-working Secretary, to our Southern colleagues, to our adopted vocation, and Nashville will prove the open door to an unlimited field for the future votaries of our profession.

ON TO NASHVILLE!

WAKE UP, CONNECTICUT!

WHAT is the matter with the Nutmeg State Veterinary Association? Why is it not more actively in the harness? Surely the load has not been all drawn up the hill there, and the descent of ease secured. Surely they have not all the laws in that State that are needed for the protection of their people from charlatans and from contagious and infectious diseases. Surely the millennium of meat- and milk-inspection has not been reached. We have not heard of any quarantine regulations to guard the borders of their State. There must be danger in all these directions which must be provided against. And this work is the duty of every State organization. The Nutmeg State has a large number of good men, intelligent veterinarians and interested professional men, and a shoulder-to-shoulder struggle will secure all the desired results. Sister Associations are ready to help. The JOURNAL is yours for support, information, and a helping hand. Wake up, colleagues, and command us all to help you!

MAKE SHORT WORK OF IT.

A BILL has been presented in the State Legislature of Pennsylvania by Mr. Jennings, of Sullivan County, proposing to reopen the law of 1889, requiring registration of all veterinarians. The object of the measure is to enable those who have been in practice or who have been using the title for the past ten years to be privileged to register on or before January 1, 1898. As this Act is disguised legislation of a special nature and of the most pernicious character, every veterinarian in the State should raise his voice against it, wield his pen to defeat it, and, in making short work of it, impress his representative that there will be no toleration of such vicious legislation as this which is so prejudicial to public good.

ANOTHER German embargo is announced involving an eight-day quarantine of all horses from the United States. But the order does not apply to those from Canada. After this period, on passing veterinary inspection, they are permitted to enter the markets for sale. Forbearance with the annoyances aimed at this country has ceased to be a virtue, and only retaliatory measures will wake these people up. Stop the beet-root importation, analyze some of the beers and wines sent us, and there will soon be a stay of proceedings.

NEW YORK CITY has listed tuberculosis among the infectious and contagious diseases, and proposes to deal with it from such a standpoint, for all of which every true student of sanitary medicine should be deeply thankful, as it cannot help to solve much of the mystery surrounding the most potent methods of propagation and transmission, and it will be a means of determining how radical must be the measures to be adopted as sanitary police regulations.

THE State Grange of Pennsylvania strongly indorses the proposed legislation to prevent the introduction of untested cows from other States among our dairy herds. It will also petition the Legislature to appropriate a sum of money for prosecuting the work of investigation of several of the diseases so destructive to the live-stock interests of the State, and ask that suitable facilities may be provided and that the work be under the direction of the State Live-stock Sanitary Board. All of which is in keeping with the proper appreciation of the live-stock and dairy interests of the Keystone State.

TWO EXCELLENT SELECTIONS.

GOVERNOR ROBERT B. SMITH, of Montana, has called Dr. M. E. Knowles to the position of State Veterinarian. Dr. Knowles, who is a graduate of the American Veterinary College and a member of the United States Veterinary Medical Association, is peculiarly well equipped by virtue of a wide and varied practical experience in the veterinary profession, having served in official positions where extensive experience has fitted him for excellent State work. We are sure there will be no backward step in this hustling, aggressive State in caring for its valuable live-stock industries, and there will be an earnest disposition to broaden the field of usefulness and employment of a larger number of veterinarians. Dr. Knowles succeeds Dr. Robert H. Bird, who has held the position for several years.

Franklin, Pa., has chosen for its mayor Dr. George B. Jobson, a veterinarian well known throughout the oil country. The doctor is a member of the Pennsylvania State Veterinary Medical Association, and has not forgotten to combine with his professional duties those of good citizenship. In many ways he has always shown his interest and zeal in the welfare of his adopted city, and she has now chosen him to preside over her needs and destiny as chief magistrate. We are proud of this recognition of one of our members, and doubly so of his keen interest in good politics, and there is assured to Franklin a wise and broad administration of her public affairs and a keener interest in her well-being through a more wholesome and pure food-supply than she has ever enjoyed. We congratulate our colleagues on the merited recognition accorded them.

WHY do certain Western live-stock journals continually inveigh against the bringing of sheep across the Mexican border, as if this was the only source of scab among sheep, when some of the Western States find it necessary to quarantine against all the States around them for the same cause. This savors too much of the actions of foreign countries against our own meat-products.

THE Army Legislative Bill has gone to the extra session of Congress. And with better prospects of returning prosperity, through a large balance of trade in our favor, it is felt that the one chief obstacle in its passage, that of need of retrenchment, will not be so forceful, and with the continued aid and support of the profession the committee is sanguine and hopefully confident of its being engrafted upon our national statutes.

Let everyone give a helping hand.

THE death of Dr. John R. Hart, of Philadelphia, noted in this number, removes from the profession a valuable member, a conscientious worker, a devoted student of his calling, and a valued citizen of this community.

It would seem that the lower branch of our national government has run mad in its zeal to pander to every locality and interest in rearing up a tariff barrier that will be as surely wiped off our statutes as the rising of the sun. Its intention to place a tariff on books and scientific instruments intended for libraries and institutions of scientific teaching is a fair sample of its general character, and this effort to restrain the attainment of scientific knowledge should arouse a protest from every advocate of higher education.

OUR May number will be as replete with interesting matter as our present issue. Among the leading features will be the commencement exercises of the various veterinary colleges; much original matter intended for this issue and correspondence, both interesting and important; several important book reviews, and much other matter crowded out of this number.

ONE of the members of Congress from Nebraska proposes, in conjunction with the appropriation bill to the Department of Agriculture, to rescind all the movements and decisions of the past three years that have led to so wise an establishment of the merit system in this department. We ask him to read the signs of the times, to note particularly the selfish interests only that give support to this movement, and, on the other side, balance the strong influence and unselfish advocacy of those who favor its retention. It will require but a moment for a wise man to decide on which side of the fence he should get down, and to bear in mind the experience of the Ohio man who trifled with the heels of the mule, and who afterward was not near so good-looking, but he had an all-fired sight more sense. Don't trifle with a good law, a true evidence of national progress. DON'T MONKEY WITH THE BUZZ-SAW.

PROSPECTIVE changes in the editorial direction and ownership of the *Veterinary Magazine* involve the retirement of Professor Pearson. Professors Adams and Harger will maintain the periodical and assume the chief direction of the same.

MARRIAGES.

On January 30th Dr. Wilfred Lellman, Professor at the New York College of Veterinary Surgeons, N. Y., to Miss Gertrude Runge, of Stettin, Germany.

At Detroit, Mich., November 18, 1896, by the Rev. C. H. Vincent, Dr. Alexander Findlay, of Camden, N. Y., to Miss Lillian McAully, of Centerville, Ont., Canada.

NECROLOGY.

John R. Hart, V.M.D. At the German Hospital, Philadelphia, March 29, 1897, from acute appendicitis, passed peacefully away one of the best-known and most highly respected veterinarians of our country. Dr. Hart was born in Hammonton, New Jersey, May 9, 1848. Shortly after his parents moved to old Kensington, Philadelphia, where he grew to manhood and spent his entire professional career, and the people learned to prize the noble qualities he possessed. His early life was full of privations and hardships, which he endured with a remarkable degree of courage. He was possessed of a determination to succeed that never faltered in his honorable career. He lived as a citizen among the people who had known him from childhood and as a useful and appreciated practitioner among a large clientage. His early struggles changed in no way the generous, hospitable, and warm-hearted character of the man, and these beautiful traits and disposition were shown forth in his everyday life, and claimed for him a friend with every new acquaintance.

Dr. Hart was graduated from the Veterinary Department of the University of Pennsylvania in the class of 1895 after a period of hard and earnest study, during which he continued his care of a large practice. For thirteen years he was city veterinarian, which position he raised to one of much importance and worth. He was an honored member of the United States Veterinary Medical Association, where on several committees, especially that of Army Legislation, he performed the most earnest and assiduous service; treasurer of the Pennsylvania State Veterinary Medical Association for seven years, where, in addition to caring for the accounts in a most accurate manner, he frequently raised large sums of money for State legislative work, and wielded a strong influence at all times in securing favorable legislation. As President of the Keystone Veterinary Medical Association, an honor conferred upon him in recognition of his valuable services to the profession, he was enjoying a second term in office, accorded him by a unanimous vote. Surely God worketh out His plans in a mysterious way, for so useful and earnest a worker will be missed on every side and his place be difficult to fill. His funeral was attended by a large number of veterinarians, many alumni of his alma mater, and the students of the Veterinary Department of the University of Pennsylvania. President Osgood, of the U.S.V.M.A., and Prof. R. S. Huidekoper, his old preceptor, were among the honorary pallbearers, while Drs. Leonard Pearson and W. Horace Hoskins were assigned posts of duty in carrying his body to its last resting-place. A wife and nine children survive him. All in all, it was good to know him and to be counted among his friends.

JOHN DORIS, Jr., D V.S., died at his residence in Pittsburg, Pa., on Friday, March 5, 1897, of acute pleurisy, after suffering seven days' illness, which was contracted in the line of professional duty while treating sick animals in the flooded districts in the lower parts of the city. He was born and raised in Pittsburg, where he learned the farrier's trade with his father, who was a classical scholar and a well-informed veterinarian and master-horseshoer. Dr. Doris followed his trade for twenty-five years. Then, having decided to study veterinary science, he attended one session at the Ontario Veterinary College, also one session at the Ohio Veterinary College, from which he was graduated and received his degree of D.V.S. April 5, 1892. He was veterinary inspector for three years in the Bureau of Animal Industry, United States Department of Agriculture, and was stationed in Pittsburg. He was a member of the Pennsylvania State Veterinary Medical Association, also of the leading Catholic societies of that section. He was a warm-hearted and generous friend, a good husband, and kind and indulgent father. He was in the fiftieth year of his age, and leaves a widow and three small boys to mourn his demise.

J. W.

Daniel Walsh, V.S., one of Philadelphia's oldest non-graduates, died on March 1st. His practice was largely among the draymen and teamsters along the Delaware River front.

NEW PUBLICATIONS.

The translation of Professor Georg Müller's *Diseases of the Dog* is rapidly nearing completion. Dr. Alexander Glass, the translator, is sparing no effort to have the book complete in every detail and brought down to the latest researches and investigations of the diseases of canines. The illustrations, numbering nearly one hundred, will add greatly to the value of the book. The work is being printed by the well-known medical printing house of William J. Dornan, printer of the Journal, an assurance of the best workmanship.

The *Agricultural Journal*, of the Cape of Good Hope, comes out in its January issue in new form—a complete new dress, more attractive, more readable, and is a very acceptable change over the former issues of this periodical.

CORRESPONDENCE.

Editors Journal of Comparative Medicine, etc.

Dear Sirs: In the February issue of your Journal is a communication by Mr. Harold Sorby, Chicago, manager of the Pasteur Vaccine Company, in which he announces the discovery that "equine anasarca" is due to a variety of the streptococcus, and that it can be successfully treated by the antistreptococcus serum (Marmorek).

As it appeared to me questionable that anasarca, as understood in its general pathological sense, should be a germ disease, I procured a copy of the *Recueil de médecine vétérinaire*, containing the original announcement. This had been made at a regular meeting of the Central Society for Veterinary Medicine of Paris, and from the tenor of the discussion by Dr. Trasbot and others it is evident that the French veterinarians understand by "anasarca vrai" the disease known to English veterinarians as "purpura hemorrhagica."

In this version the discovery becomes at once intelligible, and is a verification of an idea which many of us have held for some time. Moreover, it is very interesting and important news for veterinarians.

OLOF SCHWARZKOPF.

CHICAGO, March 6, 1897.

SECTION WORK IN THE U.S.V.M.A.

EDITORS JOURNAL COMPARATIVE MEDICINE, ETC.

DEAR SIRS: Our veterinary journals have recently contained articles with reference to the desirability of devoting a part of the time of the annual meeting of the U. S. V. M. A. to section work. I think there can hardly be two opinions as to the good results that would accrue from the giving up of a portion of the time of the convention to the consideration of subjects having a more practical bearing on the everyday work of the general practitioner. It seems to me that by so doing we would popularize our meetings and render them more attractive to the great bulk of the profession. The man who is making his living by general practice is more apt to be induced to become an active member of our national body if he finds that by attending the meetings he will receive information and instruction which are calculated to benefit him in his daily work. It matters not at what point our meetings may be held, there are members who have to travel long distances to be in attendance; if, however, we can offer attractions to the general practitioner, and make him feel that it will pay him to become "one of us," I think we will have accomplished a great deal; because, after all, it is the profession as a whole that we have to look to for the encouragement and growth of our organization. By dividing up the time of our meeting, then, so as to cater to the wants of the various branches of the profession, we will not only add to the general interest taken in the Association, but largely augment our roll of membership.

If in order, I should like to express the hope that our Executive Committee is bearing Nashville, Tenn., in mind for the annual meeting of 1897. The profession in the South not only desires, but *requires* the aid and stimulus of our National Association; and as the profession south of Mason and Dixon's line has never been favored with a visit from that body, I sincerely trust the Executive Committee will appreciate our necessities and realize the benefits to the profession in the southern part of the Union that would result from such a meeting.

W. H. DALRYMPLE, M.R.C.V.S.

NEW ORLEANS, LA.

CONTROL WORK.

Montana. State Veterinarian Knowles denies the existence of scab in sheep in his State. The only outbreak was through some Wyoming sheep brought into the State. Governor Smith, by proclamation, will quarantine against the following States owing to the belief that scab prevails among their sheep: Oregon, Nevada, California, Washington, Wyoming, Idaho, Colorado, Utah, Oklahoma, and New Mexico. Each county of Montana has a sheep inspector.

Connecticut. During 1896 some 6300 cattle were examined for tuberculosis and 897 were condemned and destroyed. The average value of animals condemned was $24.47. The total cost of the entire work for the year, including commissions, fees, animals condemned, veterinary services, etc., was $31,639.63. Of this amount, $3497.69 was paid as professional fees to veterinarians.

National. The first official order issued by Secretary Wilson, of the Department of Agriculture, made its appearance on March 9th. It concerns the exportation of beef to foreign countries, and provides "that from and after March 15, 1897, all beef offered for transportation to European ports, whether fresh, salted, canned, corned, or packed, being the meat of cattle killed after the passage of the Act under which this order is made, shall be accompanied by a certificate issued by an inspector of the department showing that the cattle from which it was produced were free from disease and the meat sound and wholesome; and in order that it may be determined whether all beef exported to European ports has been so inspected and found to be wholesome, it is further ordered that the meat of all other species of animals exported to such ports which for any reason does not bear the inspection stamps of the department, shall be packed in barrels, cases, or other packages which are legibly marked in such manner as to clearly indicate the species of animal from which the meat was produced. Meat which is not so marked and which is not accompanied by a certificate of inspection will be classed as uninspected beef and will not be allowed exportation to European ports."

No clearance is to be given to any vessel having on board such meats until the provisions of the order are complied with. Until otherwise ordered, certificates will not be required with beef exported to other than European countries. The original order of the Secretary of Agriculture, of August 28, 1895, for carrying out the provisions of Section 2 of the Act under which the order is made was postponed to the date set out in Secretary Wilson's circular.

Virginia. The subject of meat- and dairy-inspection is being agitated in some of the cities of the State. The Town Council of Blacksburg passed an ordinance a short time ago establishing meat- and dairy-inspection for the town; also establishing a board of health, consisting of two physicians and one veterinarian.

The University of Virginia has requested the State Veterinarian to make the tuberculin-test on all dairy herds supplying milk to the University boarding-hall.

As a result of the work done on Texas cattle-fever in Virginia in 1896 over six counties have this year been released from quarantine. The State is making a strong effort to stamp out the disease.

Pennsylvania. One herd in the northwestern part of the State, numbering 171, proved to have 157 tuberculous. This herd had no known cases seven and a half years ago, when seven head of short-horn cattle were purchased from a New York herd, most of which were in a bad condition at the time, as they were coughing, and many soon died. Since then many deaths have occurred. The average age of the herd was a little over four and a half years. Surely no one will dispute the need of laws to protect our dairy interests, the only profitable business to the farmer in Pennsylvania, from such disastrous results.

Dr. Emil Knight reports a two-year old cat presented for castration, with but one descended testicle. This was removed, and though twelve months have elapsed the second one has not made its appearance in the scrotum; the feline still frequents his old haunts on stated occasions.

LEGISLATION.

South Dakota. A bill has been presented to the Legislature in this State looking to better regulations regarding the sheep industry and its protection from the dissemination of sheep-scab.

Illinois. The movement in Illinois to establish a veterinary college at the University of Illinois has taken shape in the form of Senate Bill No. 204, which provides for the creation of such a department on an adequate scale, and has very earnest support throughout the State. If this wise movement is to be accomplished, the aid of every veterinarian in the State will be needed.

The bill to regulate the practice of veterinary science is in a fair way for favorable consideration. If the State is going to create a school of veterinary medicine, it should be prompt and eager to properly protect those who qualify themselves for this work.

Wisconsin. A bill to regulate the practice of veterinary medicine, surgery, and dentistry:

SECTION 1. No person shall practise veterinary medicine, surgery, and dentistry, or any branch thereof, in this State, for compensation, or shall directly or indirectly ask or receive for his service as a practitioner of veterinary medicine and surgery, any fee or reward, or shall assume the title of doctor, physician, or surgeon by means of any abbreviation, or by the use of any word or words, letters of the alphabet of the English or any other language, or any device of whatsoever kind, printed, written, or painted, or exhibited in any advertisement, circular, handbill, letter, or other instrument, nor on any card, sign, door, or place whatsoever; nor shall he be a competent expert witness in any court in a matter pertaining to diseases of animals, except he be duly registered as hereafter provided in the office of the register of deeds of the county in which he resides.

SEC. 2. No person shall be entitled to register as such practitioner unless he be a graduate of a legally chartered school, college, or university of medicine and surgery, or shall have practised veterinary medicine, surgery, and dentistry in this State continuously for a period of not less than five years preceding the passage of this Act; or if he be not a graduate of a legally chartered school, college, or university of medicine, surgery, or dentistry, he must pass an examination before a board of examiners. Should any candidate presenting himself for examination before said board fail to pass the same in a creditable manner in the judgment of said board, he may present an application to said board for another examination at any time within six months after his first examination.

SEC. 3. A board of examiners shall be appointed by the Governor within thirty days after the passage of this Act, to be known as the "State Board of Veterinary Medical Examiners." Such board shall consist of three practising veterinarians, who shall each be the holder of a diploma granted by a legally chartered school, college, or university, who shall hold office one for one year, one for two years, and one for three years after such appointment or until their successors are appointed thereafter each year. The Governor shall appoint one member of said board to fill the vacancy occasioned by the expiration of the term of office of those previously appointed, and is further authorized to fill such vacancies as may occur.

SEC. 4. Provides for a fee of ten dollars, to be used to defray expenses of the board.

SEC. 5. Provides for the proper registration in the respective counties of the State by those who are licensed by the board.

SEC. 6. Provides penalties for violation of the provisions of the Act.

SEC. 7. Designates the county district attorneys as prosecutors.

SEC. 8. Provides for the rendering of gratuitous service in emergency cases by authorized practitioners from other States.

SEC. 9. Provides for the immediate enforcement of the provisions of the Act on passage.

Connecticut. The repeal of the former law has led to the presentation of a new one relative to the control of bovine tuberculosis. A bill to regulate the practice of veterinary science has been offered in the present State Legislature.

Pennsylvania. The bill to license horseshoers in Pennsylvania was defeated on second reading in the House, and an effort to reconsider it for a place on the calendar was followed by a motion to indefinitely postpone. Public sentiment was not sufficiently aroused as to its merits.

A resolution relating to the protection of the cattle of Pennsylvania from diseased cattle from other States, adopted by the Legislative Committee of the Pennsylvania State Grange, March 9, 1897:

WHEREAS, There are at present no restrictions on the introduction of diseased cattle from other States into Pennsylvania; and

WHEREAS, It is known that many cattle in this Commonwealth have become diseased through contact with diseased cattle from other States; and

WHEREAS, The fact that some States have established regulations providing that only healthy cattle may be brought within their borders places Pennsylvania at a disadvantage in this respect; be it

Resolved, That we, the Legislative Committee of Pennsylvania State Grange, after a careful examination of the proposed bill introduced by Hon. Louis Piollet, entitled "An Act to protect the health of the domestic animals of the Commonwealth of Pennsylvania," most heartily indorse the same and earnestly urge its passage by the Legislature.

Committee: Leonard Rhone, S. J. Logan, James G. McSparran, B. F. Warren, Frank N. Moore, and Gerard C. Brown.

Dr. Pize has discovered in guaiacol a new anæsthetic. Small doses are injected under the skin.

SOCIETY PROCEEDINGS.

U. S. V. M. A.

THE resolutions adopted at Buffalo, fittingly recognizing the generous hospitality of the city accorded us in September last, have been suitably engrossed and framed and placed with Chairman Hinkley, of the local committee of U. S. V. M. A. Permission has been asked of the city to allow a photographic copy to be placed in the City Hall.

Every Association meeting throughout the land between now and September should have on its programme, as a feature for consideration, action, aid, and the selection of delegates to the U. S. V. M. A. meeting at Nashville in September.

As the U. S. V. M. A. committee for receiving contributions to the Pasteur Monument Fund is desirous of making a report to the committee at Washington, it is earnestly requested that the members send in their contributions, that our part of this laudable project may be fittingly performed.

President Osgood announces the following appointments for the Committee on Intelligence and Education: Dr. H. D. Gill, Chairman; Drs. Thomas B. Rayner, Olof Schwarzkopf, W. B. Niles, and W. H. Dalrymple.

Dr. Dalrymple expresses himself in the terms of "I am mighty glad Nashville is to be the place of meeting for 1897."

President Osgood should appoint for the Nashville meeting a press committee, a committee on new members, and a local committee of arrangements. There is work for them all, and they could greatly enhance the success of the meeting. We hope he will act on the suggestion.

IOWA STATE VETERINARY MEDICAL ASSOCIATION.

(Reported for the JOURNAL by our Correspondent.)

THE Association held its ninth annual meeting in the Capitol Building at Des Moines, Ia., on Wednesday and Thursday, January 13 and 14, 1897.

About thirty members were present, which was a large attendance, considering the condition of the profession in this State at the present time.

First Day: Dr. L. U. Shipley, President, delivered an interesting address touching on the present condition of the profession in general and that of Iowa in particular, and offered some valuable suggestions relative to legislation and sanitation.

The Committees on Stock Paper Publications and Army Legislation failed to present any reports, but a resolution was adopted asking the Iowa members of Congress to support the bill of the Army Legislative Committee of the U. S. V. M. A.

Another resolution was adopted urging our Congressmen to do all in their power to defeat the pending bill relative to vivisection in the District of Columbia.

A number of new members were admitted.

The Committee on State Legislation reported that they had secured the introduction of a bill controlling the use of the title of veterinarian, but that they were unable to secure its enactment.

The Committee on Sanitation presented a report touching on the state of milk- and meat-inspection within the State and the larger cities of the United States, a short synopsis of the laws of the various States relative to the control of contagious diseases among live-stock, and a short *résumé* of the bills considered by the State Legislature at its last session relative to veterinary sanitation.

An invitation was extended to the State Fair delegates who were in session in another portion of the building to meet with us after supper and listen to a paper on "Serum-therapy in Hog-cholera," by Dr. A. F. Peters, of Lincoln, Nebraska. The invitation was accepted and at the appointed time and place Dr. Shipley called the two Associations to order.

Dr. Peters's paper brought out an animated discussion that was cut short by the President-elect of the Fair Association stating that it was time for the members of that Association to withdraw to participate in their annual banquet, and who extended an invitation to the members of the Veterinary Association to partake of their hospitality at the banquet table. On motion, this invitation was accepted. Most of the members of both Associations, to the number of about 125, repaired to the banquet hall, where, after feasting the physical man, we were entertained until a late hour by a number of carefully prepared and spicy toasts.

Second Day: President Shipley called the Association to order promptly at 9 A.M. The business transacted was the election of officers for the ensuing year, which resulted as follows: President, G. A. Johnson, of Sioux City; First Vice-President, S. H. Kingery, of Creston; Second Vice-President, J. H. McLeod, of Charles City; Secretary and Treasurer, J. E. Brown, of Oskaloosa.

The President then introduced Dr. J. F. Kennedy, Secretary of the Iowa State Board of Health, who read a very able paper on the "Relation of the Veterinary Profession to the Public Health."

Prof. W. B. Niles delivered a short lecture on "Parasitic Disease of Sheep." President Shipley reported a case where hogs contracted tuberculosis from a tuberculous cow. The following papers were then presented: "Duties of the State Veterinary Surgeon," by Dr. J. I. Gibson, State Veterinarian; "Ergot in the Treatment of Fungoid Growths," by Dr. W. A. Heck; "Azoturia," by Dr. W. H. Austin; "Thermo-cautery in Veterinary Practice," by Dr. P.O. Koto; "Lymphoma," by Dr. Miller; "Barium Chloride: Its Uses in Colic," by Dr. J. E. Brown. Each of these papers provoked an animated discussion, which, owing to the lack of time, had to be cut short in some cases.

At 6.15 P.M. the meeting adjourned, to meet at such time and place as the President and Secretary should designate.

Dr. Peters's (of Lincoln, Neb.) good work lent much interest to the meeting, and it was with much pleasure that the Association unanimously elected him an honorary member.

To those members of the Association who failed to attend we extend our sympathies, for they certainly missed a rare treat, both from an instructive and social point of view. One of the very pleasing features of this was the acquaintance and fraternal feeling established between the State Fair and Iowa State Veterinary Medical Associations.

The State Dairy Commission was in attendance a part of the time during both days' sessions, and took an active part in the discussions, especially those relative to milk-inspection and tuberculosis.

This closed one of the best meetings ever held by any State association in this country, and we sincerely hope that others as good may follow, and that none of the members will be compelled to miss the benefits that are to be derived from an attendance upon such meetings.

MASSACHUSETTS VETERINARY MEDICAL ASSOCIATION.

THE regular monthly meeting was held at No. 19 Boylston Place, Boston, on Wednesday evening, January 27, 1897. The President, John M. Parker, called the meeting to order at 8 P.M. Members present: Drs. Beckett, Blackwood, Burr, Cronan, Frothingham, Howard, Lee, Lewis, McLaughlin, Parker, Peters, Pierce, Rogers, Winslow, Winchester, Stickney.

Dr. McLaughlin reported the malformation of a tooth met with recently in practice. Dr. Winchester reported a case where he found adhesion of one testicle to the peritoneum. Dr. Cronan had a dog presented at a clinic with a half-dozen twists in the off forward leg. Dr. Beckett reported a case of "Bastard Strangles" which made a good recovery. Dr. Howard reported an interesting case of a pony which ran away and severed the jugular. When he saw, it some time after, a clot had formed, and it made a good recovery. Dr. Cronan reported the successful removal of a prolapsus uteri by ligature.

Meeting adjourned at 10.10 P.M.

HENRY S. LEWIS,
Secretary.

MICHIGAN STATE VETERINARY MEDICAL ASSOCIATION.

THE fifteenth annual meeting was called to order at 2.30 P.M., Tuesday, February 2, 1897, in the parlors of the New Grand Hotel, Lansing, Michigan, President Dr. W. W. Thorburn in the chair. The following were present: Drs. J. Hawkins, D. G. Sutherland, D. Cummings, J. A. Dell, E. A. A. Grange, J. W. Ferguson, W. J. Byers, J. C. Whitney, Wm. Jopling, W. W. Thorburn, J. J. Joy, W. A. Giffen, James Drury, W. M. Burdick, H. M. Gohn, Wallace McQueen, Judson Black, G. W. Dunphy, A. McKercher, B. C. McBeth, S. Brenton, and George E. Metcalf. Drs. Wm. S. Hamilton, of Chelsea; D. M. Waldo, of Grand Ledge; L. A. Grimell, of North Lansing; and E. T. Handy, of Eaton Rapids, were present as visitors and became members of the Association.

The President, Dr. Thorburn, gave a ringing address. Among other things, he said that the year just closed had been one of deep concern to the veterinary profession. Statistics show that since 1892 the valuation of horses in Michigan has made a 50 per cent. decline, and he felt assured that each member present had felt the effects of it in their practice. He gave encouragement by saying that he thought the darkest days are past and we are soon to emerge into the light and sunshine of professional prosperity, and the trials through which we have recently passed will enhance the sweetness and pleasure of the future. He felt only pity and regret for those who, in the trials of financial depression, have taken false steps by entering upon quackery and questionable methods of practice. He suggested the advisability of a table of rates for professional services. On veterinary legislation he spoke at some length, and thought the only way to secure the passage of a bill was to insert a "time" clause. A vote of thanks was tendered President Thorburn for his very able address, which was ordered spread on the minutes.

The minutes of last meeting were read and approved. The report of the Secretary for the year ending February 2, 1897, was read and approved. The Treasurer's report for the year ending February 2, 1897, was read and referred to the Finance Committee.

The Committee on Intelligence and Education made a verbal report, which gave rise to quite a discussion, particularly that calling attention to the vivisection bill in the District of Columbia. The committee was instructed to draft resolutions disapproving such a bill becoming a law. The report of the committee was accepted.

The Committee on Diseases made a verbal report, which was accepted.

The report of the Committee on Legislation, owing to the death of the chairman, Dr. Rutherford, was made by Dr. Giffen, of Detroit. The principal point at issue was the presenting to the Legislature a bill with time clause inserted. A yea and nay vote of the members disclosed the fact that the majority of the Association did not favor a time clause. The report was accepted.

A committee was appointed by the President, consisting of Drs. E. A. A. Grange, G. W. Dunphy, and J. A. Dell, to draft resolutions on the death of Dr. J. D. Rutherford.

Meeting adjourned until 7.30 P.M. Called to order for evening session at 8 o'clock.

Committee on Intelligence and Education presented resolutions in reference to the vivisection bill, which, upon motion, were approved and the Secretary instructed to send printed copies to the Senators and Congressmen of this State.

The Finance Committee reported that they found everything correct with the Treasurer's books; report accepted.

Upon motion, the President appointed a committee, consisting of Drs. J. Hawkins, J. W. Ferguson, and W. McQueen, to communicate with his honor, Governor Pingree, requesting him to retain Prof. E A. A. Grange as State Veterinarian.

Moved and supported that this Association donate $5.00 to the Pasteur Monument Fund, providing we have funds enough in the treasury after paying expenses. Motion lost.

Prof. Grange gave a very able, interesting, and instructive talk on the "Milk Apparatus and its Diseases," which was illustrated by charts.

Moved and supported and carried that Prof. Grange be allowed to invite any of the students from the Agricultural College who may wish to see surgical operations to be present at the same.

Dr. J. Black read a paper prepared by Dr. Stevens, of Yale, giving twenty experiments with barium chloride in the treatment of obstinate constipation and acute indigestion. Dr. Stevens speaks very highly of the remedy.

Meeting adjourned at 11.30 P.M., to meet at Dr. Thorburn's infirmary at 9 A.M., to witness surgical operations.

Wednesday, February 3d, 9 A.M.: As prearranged, all the members of the Association present and several students from the Agricultural College met at Dr. Thorburn's to witness operations. Dr. S. Brenton, of Detroit, was the chief operator, and performed median neurectomy for injured tendons and disease of the fetlock, tarsal tenotomy for spavin, and neurotomy for navicular disease and ringbone. The operations proved very interesting, and Dr. Brenton was tendered a hearty vote of thanks for the valuable instructions given.

Meeting called to order again at 2 P.M. The election of officers was taken up and resulted as follows: President, Dr. A. Campbell, Jackson; First Vice-President, Dr. J. Black, Richmond; Second Vice-President, Dr. W. A. Giffen, Detroit; Third Vice-President, Dr. H. M. Gohn, St. Johns; Secretary and Treasurer, Dr. William Jopling, Owosso; Directors, Drs. J. J. Jay, Chairman, Detroit; Dr. W. M. Burdock, Chesaning; Dr. A. McKercher, Lansing; Dr. J. Byers, Charlotte; Dr. J. W. Ferguson, Bay City; Dr. James Drury, Ypsilanti.

Moved and supported that a bill be drafted and presented to the Legislature now in session to protect the "College Title of Veterinary Surgeon;" carried.

Drs. G. W. Dunphy, H. M. Gohn, and S. Brenton promised papers for the next annual meeting.

A vote of thanks was given Dr. Thorburn, the retiring President, for the interest taken in the Association and for his courtesy to the members while in Lansing, his home.

A vote of thanks was extended our host and hostess for their uniform kindness and attention.

The following standing committees were appointed:

Intelligence and Education: Drs. E. A. A. Grange, Lansing; S. Brenton, Detroit; G. W. Dunphy, Quincy.

Committee on Diseases: Drs. D. Cummings, Port Huron; J. Hawkins, Detroit; H. M. Gohn, St. Johns.

Committee on Finance: Drs. W. W. Thorburn, Lansing; Wallace McQueen, Oxford; George E. Metcalf, Detroit.

Committee on Legislation: Drs. W. A. Giffen, Detroit; J. W. Ferguson, Bay City; Judson Black, Richmond.

Adjourned in due form.

WILLIAM JOPLING,
Secretary.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

THE semi-annual meeting was held at Leland Hotel, Springfield, Ill., February 17, 1897. The meeting was called to order by the President, Dr. M. R. Trumbower, at 10 A.M. On roll-call by the Secretary the following members responded: A. G. Alverson, Albert Babb, A. H. Baker, L. Campbell, James Henderson, J. F. Pease, H. G. Pyle, E. L. Quitman, G. G. Ratz, C. E. Sayre, M. R. Trumbower, N. P. Whitmore, and W. H. Welch. The minutes of the previous meeting were read and approved.

On motion, the talk on "State Work," by Dr. M. R. Trumbower, was postponed till afternoon. Dr. J. F. Pease read his paper on "Study of Odontomes," which was very interesting and liberally discussed. The Society then listened to the very instructive essay of Dr. W. H. Welch on the subject "Milk Sickness." On motion, the ensuing discussion was closed. On motion, a vote of thanks was tendered to the essayists for their productions.

On motion, a committee of three, consisting of Drs. Albert Babb, A. H. Baker, and J. F. Pease, was appointed to go before the House Committee of Live-stock and Dairying, before which our veterinary bill is to come this afternoon. On motion, Drs. M. R. Trumbower and A. G. Alverson were added to the committee.

On motion, the Society adjourned until 4.30 P.M. The Society reconvened at the appointed hour and listened to the report of the committee through its chairman, Dr. Albert Babb. The House Committee of Live-stock and Dairying postponed action on the veterinary bill for one week.

On motion, the rules were suspended for the time being and the following gentlemen elected to membership by acclamation: Dr. G. G. Grundy (C. V. C., 1890), Morrisonville, Ill.: vouchers, Drs. Albert Babb and N. P. Whitmore; E. J. List (C. V. C., 1892), Havana, Ill.: vouchers, Drs. Albert Babb and M. R. Trumbower.

The President appointed a committee of three, consisting of Drs. Welch, Alverson, and Quitman, to draft resolutions in regard to the death of Dr. J. W. Parkinson, late of El Paso, Ill. They made the following report:

WHEREAS, The all-wise Providence has seen fit to remove from our midst our professional brother and former co-laborer, J. W. Parkinson, late of El Paso, Ill., an enterprising and conscientious veterinarian, whose studious and gentlemanly qualities placed him in the front rank of our profession; be it hereby

Resolved, That we, the Illinois State Veterinary Medical Association, deeply deplore his loss to the Association and to the profession at large, and sincerely sympathize with his family in their bereavement.

Resolved, That these resolutions be spread upon the minutes of this Society and that a copy be forwarded to the family of the deceased.

Dr. Trumbower then gave the Society a very entertaining and instructive discourse on "State Work."

On motion, the Society adjourned, to meet in Chicago in November, at the call of the President.

ALBERT BABB, A.B., M.D.C.,
Secretary.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

OFFICERS AND COMMITTEES.

President, James B. Rayner, West Chester; First Vice-President, M. E. Conard, West Grove; Second Vice-President, J. C. Foelker, Allentown; Third Vice-President, George B. Jobson, Franklin; Recording Secretary, Jacob Helmer, Scranton; Corresponding Secretary, W. L. Rhoads, Lansdowne; Treasurer, John R. Hart, Philadelphia.

Board of Censors: W. H. Ridge, Chairman, Trevose; W. Horace Hoskins, Philadelphia; S. J. J. Harger, Philadelphia; J. C. McNeil, Pittsburg; J. W. Sallade, Pottsville.

Committee on Sanitary Science and Police: J. Curtis Michener, Chairman, Colmar; Francis Bridge, Philadelphia; J. F. Butterfield, South Montrose; J. B. Irons, Erie; S. E. Weber, Lancaster; N. E. Rheinhart, Pottstown; C. C. McLean, Meadville.

Committee on Intelligence and Education: W. H. Ridge, Chairman, Trevose; H. B. Felton, Philadelphia; W. S. Kooker, Philadelphia; Otto G. Noack, Reading; Charles T. Goentner, Bryn Mawr.

Committee on Revision of Constitution and By-laws: Thomas B. Rayner, Chairman, Philadelphia; W. S. Kooker, Philadelphia; W. Horace Hoskins, Philadelphia; Leonard Pearson, Philadelphia; W. H. Ridge, Trevose. *Ex officio*: James B. Rayner, West Chester; W. L. Rhoads, Lansdowne.

REPORT OF THE COMMITTEE ON RESOLUTIONS.

Resolved, That this Association indorse such measures taken by the Pennsylvania State Board of Veterinary Medical Examiners as will lead to the establishment of the dehorning of cattle as a surgical operation to be practised only by qualified veterinarians.

WHEREAS, During the past year many of our members have been sorely afflicted by trials and losses unusual in number and severe in character, that we have felt that we should in our sympathy for our fellow-members take some recognition as a token of our esteem and fellowship. We specially refer to the affliction of our fellow-members, Drs. Thomas B. Rayner, J. C. Foelker, and R. G. Webster, in the loss of members of their respective families, and to the serious illness of our fellow-members, Drs. James B. Rayner and S. E. Weber. To all of these we extend our sincere sympathy, and trust that these afflictions may be tempered in their severity to our fellow-members.

WHEREAS, This Association regrets extremely to hear of the death during the past year of William Tag, Ph.G., V.M.D., of Philadelphia, graduate of the Veterinary Department of the University of Pennsylvania, class of '91, who was for a considerable time a member of this Association and was respected by those of us who knew him best; be it further

Resolved, That these resolutions be spread upon the minutes of this Association, under a suspension of rules governing the order of business, and that a copy of the same be sent to the widow of the deceased.

WHEREAS, So many recommendations have been made by our President and members involving changes in the By-laws, and in that there are many points in which the present printed laws do not seem to cover clearly, we recommend the appointment of a Committee on Revision of the Constitution and By-laws.

WHEREAS, The State Board of Health of Pennsylvania is engaged in the important work of improving the sanitary conditions under which the inhabitants of our Commonwealth are obliged to live; and

WHEREAS, The results which have thus far been achieved by said board are of the greatest value to all citizens of the State and conducted in an economical but at the same time profitable and valuable manner, which deserves the support and confidence of the public, and the expense of their work has never been in proportion to the good that has resulted from it; and

WHEREAS, This condition results principally from the indefatigable energy of its members, and particularly of its Secretary, Dr. Benjamin Lee; and

WHEREAS, It is not proper for the State to place upon its servants duties that are so necessary and arduous as those that fall to the Secretary of the State Board of Health without making proper compensation therefor; it is hereby

Resolved, That the Legislature of the State of Pennsylvania is respectfully petitioned to increase the appropriation at the disposal of the State Board of Health to such an amount that its work can be carried on more extensively and readily; and be it further

Resolved, That in said appropriation provision should be made for an increase in the salary of the Secretary, Dr. Benjamin Lee, to an amount commensurate with the duties he has to perform.

WHEREAS, The subject of horseshoeing has been much neglected in this country, and no schools for the thorough and scientific education of horseshoers have ever been established in the United States, and there is a great dearth of reliable literature on this subject; and

WHEREAS, The matter of horseshoeing is of the greatest importance to the well-being of horses and their economical use; and

WHEREAS, It is desirable that knowledge of this important subject should be distributed to a greater extent; be it

Resolved, That the State Veterinary Medical Association of Pennsylvania hereby pledges its support to any movement that has for its object the dissemination of practical and reliable information in reference to the shoeing of horses; and it regrets that schools have not heretofore been established wherein horseshoers could be given a thorough knowledge of their trade, and hope that this defect will soon be remedied by the further development of movements already inaugurated.

WHEREAS, The live-stock industry of Pennsylvania is of great magnitude and is so indispensable to agriculture and to the inhabitants of the State at large; and

WHEREAS, It is at this time harassed and drained by a number of transmissible diseases, most of which are or will be preventable; and

WHEREAS, It is not possible for the State authorities to deal with sufficient system or accuracy with all of the questions connected with these diseases, on account of absence of full information regarding them; and

WHEREAS, Such essential information can only be obtained by laboratory and field experiments and investigations conducted on an adequate scale; it is hereby

Resolved, That the Legislature of Pennsylvania is requested to provide means for the inauguration and continuation of studies of the diseases afflicting the domestic animals of this Commonwealth, in accordance with a plan comprehensive enough to allow accurate conclusions to be reached that may safely guide veterinarians, live-stock owners, and the State authorities in dealing with these momentous questions; and be it further

Resolved, That a copy of these resolutions shall be transmitted by the Secretary to the President of the Senate and the Speaker of the House and to the Chairman of the Committee on Agriculture of the Senate and of the House of Representatives, and to the Secretary of the State Live-stock Sanitary Board.

WHEREAS, As it was largely through the efforts of the Pennsylvania State Veterinary Medical Association that the law organizing the State Live-stock Sanitary Board was passed by the last Legislature; and

WHEREAS, The veterinarians of the State have been greatly interested in and have carefully observed the policy and progress of this board; and

WHEREAS, Its work has been marked by efficiency, liberality, and conservatism, and has succeeded to a remarkable degree in disarming the critics who objected to its organization; and

WHEREAS, This desirable effect has resulted largely through the efforts of the State Veterinarian, Dr. Leonard Pearson; be it

Resolved, That the thanks of this organization be and are hereby extended to the Governor, Hon. Daniel H. Hastings, for appointing the present State Veterinarian in accordance with the expressed wishes of this Association; and be it further

Resolved, That the State Live-stock Sanitary Board is hereby congratulated upon formulating and putting into effect such practical and valuable measures for the suppression of the diseases of animals and methods that are in full accord with the requirements of the situation as far as they can be met with at this time; and be it further

Resolved, That a copy of these resolutions shall be sent to the Governor and to each of the other members of the State Live-stock Sanitary Board.

Committee on Resolutions: W. Horace Hoskins, Chairman; B. F. Senseman, and M. E. Conard.

AFTERMATH OF THE CONVENTION.

Ex-President Ridge may well feel a justifiable pride in the year's work of the Association.

One of the Association's members was not at his best, owing to the suffering incidental to cutting of a wisdom tooth, which promises much in the way of increased activity and Association work.

President James B. Rayner well deserved the honor conferred upon him, and we are assured that he will have earnest support from every member.

The Chairman of the Local Committee of Arrangements looked aghast on the first day, when he had provided luncheon for forty, and sixty guests presented themselves; he proved equal to the occasion.

The Philadelphia newspapers were nearly all represented and gave extended accounts of the Convention's work—especially so the *Ledger's* representative, Mrs. E. S. Starr—for all of which the members were more than thankful.

Many were the sympathetic expressions heard on all sides for the unusual number of our members upon whom sore trials and illness had fallen during the past year.

Franklin will make a royal place for our meeting in September next. With our Third Vice-President Mayor of that hustling city, safety and protection are at least assured us.

Great was the interest shown in the Convention's work by the students of the Veterinary Department of the University of Pennsylvania, and they are to be in great measure the future supporters of our Association. Over thirty of them were there at the several sessions of the Convention.

In Secretary Rhoads the Association will find a hustling, up-to-date Secretary. His paper, "Why?" was pungent, timely, and will do much good in Association circles when read.

Secretary McAnulty, of the State Horseshoers' Association, was very much delighted by the passage of the resolutions giving encouragement to the efforts to establish schools of instruction for their craft.

The old guard was not there; sickness and death have touched keenly our members Rayner and Foelker.

After a trial of strength for Doylestown and Williamsport, it was made unanimous to go to Franklin.

Many were the inquiries as to the whereabouts of Chairman Zuill, of the Committee on Intelligence and Education. For a year not one line has been forthcoming from this committee. Referred to Secretary Rhoads—Why?

Somebody side-tracked a little boom of one of Philadelphia's candidates for First Vice-President. Well, it has not gone wrong in falling upon the shoulders of member Conard.

Where does the City of Brotherly Love come in among the elective officers—oh, yes, it has the Treasurer, the "fellow who sits on the chist," and a good, sound, safe, iron-clad officer he is.

The County Secretaries were fully alive to their work this year and sent in many good reports.

The programme was loaded. Can we not have the same at Franklin?

No less than four of the six veterinarians employed by our city were at the Convention. We were glad to note this renewed interest.

Delegate Adams struck the key-note when he said there was only a place for *one* good, strong local association in Philadelphia.

Are our members in the Lehigh Valley losing their interest? Secretary Helmer will now have to look up our supporters in that district. He will make an ideal officer.

Secretary *pro tem.* Kooker found it a little hard to get back in harness again, but the Association never had a more efficient one than during his term of office, and it never did more work throughout the State.

Now we propose that the trip to Franklin in September shall include the ladies. Let there be no stay-at-homes.

Outgoing Secretaries Benner and Allen have been very efficient officers and well deserved the thanks of the members for the able and conscientious discharge of their duties.

There seems to be no limit of work for the Keystone State Association; each year finds it increasing in volume and worth. So much for good executive officers.

The Association badly needs a press committee to better aid the proper publicity of our work. Referred to the Committee on Revision of Constitution and By-laws.

Our visitors from New Jersey and Delaware added pleasure and interest to the meeting. There should be others.

Should not the Board of Trustees be increased to seven? Ask the Committee on Revision. We now have about 130 members, and the proposition to have it made up of retiring presidents may quickly lose some of the most valuable of our members.

One of our regular attendants from Bucks County was denied the pleasure of being there, but there was an added pleasure and responsibility at home —a daughter.

One of the popular members given to recitations at the luncheon is now a devoted student of the vocal art, and hopes by next year's meeting to entertain the members with a song.

ONEIDA COUNTY VETERINARY MEDICAL SOCIETY.

In the parlors of Stanwix Hall, Rome, N. Y., February 2, 1897, was held the regular quarterly meeting. Called to order by Dr. F. Morrow, President.

The following members responded to roll-call: Drs. F. Morrow, Oneida; A. Findlay, Camden; W. G. Hollingsworth, Utica; L. G. Moore, Trenton; R. C. Hurlburt, Boonville; H. W. Skerritt, Utica; H. D. Stebbins, West Winfield; Wilson Huff and J. M. Currie, Rome. The minutes of last meeting were read and approved.

When the order of new business was called, the incorporation of the Society was fully discussed. On motion, Dr. Hollingsworth was instructed to take legal steps to do so.

Dr. H. W. Pratt, Rome, was admitted to membership by a unanimous vote.

A communication from the State Board of Health was read, asking all the members of this Society to report all cases of tuberculosis in cattle that came under their notice; all agreed to do so.

Moved and seconded that the next meeting be held Tuesday, May 4, 1897, at the residence of Dr. Hollingsworth, 24 Summit Place, Utica, N. Y.; carried.

Next came the reading of papers: Dr. Findlay presented a paper on "Luxation of the Hip-joint in Cattle," relating much of his personal experience. A general and hearty discussion followed. Dr. Huff read a paper on "Advice to Veterinarians: The Opportunities of Educated Men." Also fully discussed.

There being no further business, an adjournment was in order. Essayist for next meeting, Dr. H. D. Stebbins. J. M. Currie, V.S.,
Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The February meeting was held the 9th inst. with the following members of the profession present: Drs. R. S. Huidekoper, H. D. Gill, H. D. Martein, W. W. Martin, J. D. Houldsworth, S. J. J. Harger, Otto G. Noack, H. P. Eves, J. R. Hart, W. Horace Hoskins, Charles Lintz, James T. McAnulty, T. B. Rayner, and W. L. Rhoads.

Rev. J. D. Diederick, of Flowertown, Pa., gave a very interesting talk on "The Silo Ensilage; Ensilage-fed Cattle, their Condition and Results." His talk showed him to be thoroughly conversant with his subject, he having made a practical study of this question for several years in its most minute detail, thus making the talk doubly pleasant and interesting to the practical veterinarian who is interested in cattle practice or has given the food question any study. He thought the white Southern corn the best variety, as the stalk is sweet and succulent as well as the ear. The better plan of planting is three or four feet apart and three or four grains to the running foot. This, if cut when the ears are in good condition for boiling, then shredded (as this is much better than the old method, which chopped the stalks and ears; the shredding not only puts the fodder itself in better condition, but has the corn more evenly distributed), and at this time properly housed, makes, if opened rightly (that is, by removing all the decaying top at first), a fine June food for the balance-ration of winter, and it should be used only as a balance-ration, for as a feed alone it soon causes the cattle to break down; but if used properly it is *par excellence*, taking the place of roots, etc., and is a better appetizer, keeping the flow of milk regular. At the conclusion of his much-appreciated talk Mr. Diederick was stormed with questions. These he readily answered, amply earning the hearty vote of thanks later extended to him by the Association.

The Association now adjourned its meeting and went in a body to the banquet-room in the Odd Fellows' Temple, where a luncheon was awaiting them, and if our figure-heads at Washington took half the interest in doing their duty toward Cuba that these veterinarians did in doing justice to the duty before them, Cuba Libre would be established within twenty-four hours.

After the invigorating influence of the Blue Points had begun to be felt, mixed, perhaps, with some of the *food-product* that has served to give one of our Western cities world-wide renown, then we heard how the Association had been useful in the home of one veterinarian, being for him a means of escape when probably a jack-pot was to be opened elsewhere; we then learned of the productiveness of farms in the northeastern section of Jersey. We learned also that while corn grew there very sparingly, the air seemed just suited to crows and dogs. We heard from Dr. Gill what progress science was making in the line of toxins. After his interesting talk we were entertained by Dr. Huidekoper telling us what he thought of toxins and what he knew of navicular disease. Those who know Huidekoper know he is always interesting, and this was certainly no exception to his general rule. In fact, everyone was called upon to say something, and each did his part, giving out some new ideas or brightening up some dark spots within the horizon of the veterinarian who is now striving to keep his profession on an honorable plane for the advent of better times.

The adjournment from this pleasant second session of the February meeting was now made on account of the distance some were from home.

W. L. Rhoads,
Secretary.

CHICAGO VETERINARY SOCIETY.

The regular meeting was called to order March 11, 1897, by the President, Dr. Walker. The minutes of the previous meeting were read and approved.

Some remarks were made by the President in regard to veterinarians having the privilege from the Chicago Telephone Company to use the drug-store slot-telephones to call up their home-telephones free of charge. He requested that this matter be brought up under "new business."

A letter from Dr. Babb, Secretary of the Illinois State Veterinary Medical Association, was then read by the Secretary, setting forth the condition of the veterinary bill at Springfield, Ill. The report seemed favorable to the passage of the bill.

The Treasurer reported $37.01 in the treasury.

No report from the Secretary. No committees to report.

Under admission of new members, the applications of two gentlemen were considered—*i. e.*, Drs. E. W. McGarth and James Donovan. None of the Board of Censors being present to examine into the credentials of these two gentlemen, it was moved by Dr. Baker, seconded by Dr. McEvers, that the rules be suspended, and that as both gentlemen were well known to most of the members, both as to their qualifications as well as to their characters, that they be unanimously elected to membership. Voted; carried.

The regular programme being in order, the President called on Dr. Baker for his paper on "Open Joint." The paper proved to be an excellent one —one upon which the Doctor evidently had given much thought. It was particularly instructive as well as interesting, owing to the line of treatment suggested, which has been very successful, combined with the skill of the doctor, during the past five years. The paper was discussed by Drs. Allen, McEvers, Henderson, Ryan, Robertson, and Campbell. On motion, the discussion was closed. Motion by Dr. Robertson, seconded by Dr. Foster, that a vote of thanks be tendered to Dr. Baker by the Society for his most excellent paper. Voted and carried unanimously.

Dr. Robertson made some interesting observations in regard to the treatment of diseases of the hoof by horseshoers, and showed plainly the difficulty in drawing the line where the horseshoer should desist and the veterinarian begin, and showing that it was an impossibility for a horseshoer to shoe horses without doing some slight surgery (cutting corns, cracks, etc.) upon the hoof.

Referring to the remarks by the President in regard to the slot-machine telephones, Dr. Baker stated that he favored a conference with the company to request them to permit veterinarians the free use of the slot-telephones in drugstores for the purpose of calling up our own homes or offices, and he made a motion that the President appoint a committee of two to confer with the telephone company and try to arrange the matter. Seconded by Dr. Foster. On request of the members, the President appointed himself and Dr. Baker a committee.

A poster was next shown the Society, advertising free clinics and free treatment of horses at the Chicago Veterinary College for the benefit of poor people. Exception had been taken by one or two members to this placard, who had requested that the matter be brought up for consideration by the Society. Dr. Baker stated that all colleges had free clinics for the benefit not only of the students, but also in a measure as an assistance to the poor as well as to the sick or disabled patient; that people who would take advantage of the offer were either too poor to pay or deadbeats, and considering this fact, and also the fact that all this doctoring was done by the students for practice, he thought it a good thing and not at all in opposition to the rules of the Society or any harm to its members. Motion by Dr. Campbell, seconded by Dr. Broderick, that the Society drop this matter and take no further notice of the posters or the free clinics at the Chicago Veterinary College.

Motion by Dr. Campbell, seconded by Dr. Henderson, to return to Dr. Bennett the dues paid to the Society, as owing to the change in his location ordered by the Bureau of Animal Industry he would be unable to attend our meetings, the change having been ordered after he had attended only one of our meetings. A reconsideration was offered by Dr. Baker, who thought this would be a bad precedent. On vote the motion was lost.

On motion, adjournment. L. CAMPBELL, D.V.S.,
Secretary.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE regular meeting was held on the evening of January 28, 1897, and was presided over by the President, Dr. Baker. Dr. Martin was also present.

Mr. Thayer furnished an interesting report of a case of colic, which was treated as such, and the animal resumed work on the following morning. Two days later the animal was found to be suffering from another attack, the symptoms of which were those of an ordinary colic, with the exception of the temperature, which was subnormal, and the fact that the patient stood backed up in the corner of the box. As time went on the animal showed all the signs of enteritis, with the exception of the temperature, which was still not elevated. An ounce each of chloral hydrate and aromatic spirits of ammonia was given in a quart of oil. Subsequently two doses of sulphate of morphia of two and a half grains each were given hypodermatically, and hot woollen blankets applied to the abdomen. On passing the syringe into the rectum for the purpose of administering an enema an obstruction was encountered, which, on backraking the animal, proved to be sand. The animal died about midnight. A post-mortem examination showed that the intestines contained a large quantity of undigested food and sand, and that the floating colon was entirely obstructed, the amount of sand removed from it being some fifty-seven pounds. Discussion elicited the fact that sand was used for litter in the stable and that the animal was accustomed to eat dirt whenever he had an opportunity.

Mr. Stevenson then read a paper on "Parturition." This he confined almost entirely to a consideration of the normal act, which he divided into four stages, viz.: (1) Preliminary, (2) dilatation of the os, (3) expulsion of the fœtus, (4) expulsion of the membranes. These varying stages were then graphically described by the essayist, and after the subject had been discussed the chairman called upon Mr. Matthews for his paper on "Peritonitis."

In considering this subject the essayist divided it into two main classes —acute and chronic—and the acute into primary and secondary. Primary peritonitis is rare and may follow cold, but more modern views scarcely recognize cold as more than a predisposing cause, which permits the action of various micro-organisms. Secondary inflammation is due to extension from other organs, in which case the determining cause is the penetration into the peritoneal cavity of irritating germs. After considering the various pathological appearances Mr. Matthews said that there were probably essential differences between the various kinds of peritonitis, and that bacteriology was beginning to give valuable information upon this point; the organism most commonly present is the streptococcus pyogenes, and in a majority of the cases arising from perforation the bacillus coli communis is also present. The symptoms were next described, both in the horse and ox; but, as they have nothing typical, the clinical picture does not possess anything expressive, the numerous variations so often observed being due to its frequently secondary nature. The greatest diversity of opinion exists among authors, some advocating the use of purgatives, others condemning them. Both local and internal remedies may be employed. In small animals the application of cold may, in the primary stages, aid in combating the inflammation. In the larger animals turpentine stupes are more suitable. In suppurative peritonitis the exudate may be removed and the serous membrane washed out with an antiseptic solution. Personally, Mr. Matthews preferred the use of opium to purgatives, enemas for relieving the bowel, and in addition the administration of diuretics. In traumatic cases free drainage should be given and antiseptics carefully used. Mr. Matthews closed his paper with a few observations on chronic cases and their treatment.

In the course of a few remarks Dr. Martin pointed out that in the human subject the administration of opium would mask certain symptoms which might indicate the necessity of an operation, which on this account might be delayed with unfortunate results to the patient. Before closing the meeting Dr. Baker drew attention to the fact that peritonitis was seldom diagnosticated in the lower animals unless there was some history of previous injury.

A regular meeting was held on the evening of February 11, 1897, the President, Dr. Baker, occupying the chair. Dr. Duncan McEachran and Dr. Dawes were also present. Owing to his approaching departure from Montreal, the Librarian tendered his resignation to the Society. This was accepted with much regret, and a vote of thanks to Dr. Thurston for the excellent order in which the library had been kept during his term of office was carried unanimously. Mr. Spanton was then elected to fill the vacant position.

The case report of the evening was furnished by Mr. Spanton, and this proved to be one of exceptional interest. A cocker spaniel, about a year old, got its tail jammed in a doorway. On Mr. Spanton making an examination he found the last two joints frightfully mutilated, and thinking it best to remove them, he did so. As it was not convenient for the dog to be at liberty he was tied up, to which he strongly objected, and a couple of hours later he was found to be hanging back and trying to slip the collar. When seen the next morning his neck was found to be much swollen and very tender; the collar was therefore removed and he was secured to the chain by means of a bandage put around the forelegs and tied over the shoulder. Hot fomentations were applied, but by evening the swelling had much increased and respiration had become a matter of great difficulty. Thinking that the animal needed immediate relief, Mr. Spanton made a tracheotomy-tube out of the handle of a metal tea-pot, and by making an incision half-way down the neck inserted the tube in the usual manner. This was kept in for three days; when removed the wound was stitched with silk, the result of the operation being that the animal made a good recovery.

Dr. Baker complimented Mr. Spanton upon his ingenuity and the success of his operation, and after the case had been discussed called upon Mr. Moore for his paper. This was entitled "Breeding and Care of Dairy Cattle."

Mr. Moore at once defined good breeding as improving the stock from generation to generation in order to produce milk in larger quantities and of better quality at the least possible cost. This must be done by selecting the best males and females and mating them. A reliable opinion as to the value of a cow can only be formed from an exact record of her actual performances; but as this can rarely be obtained, certain external signs, such as the shape of the body and udder, have often to be depended upon. In choosing a sire he should invariably be pure bred, good in his own points, and if, in addition, he has good pedigree, so much the better. In-breeding must not be carried too far, or it will be certain to do harm, the progeny will be predisposed to disease, the males often impotent, and the females barren. While speaking of the best breeds for dairy purposes, the essayist put in a strong claim for the Ayrshire, and then went on to describe the care of stock, which included feeding, watering, stabling, and general management. After discussing the properties of various foods Mr. Moore drew attention to the following standard, which appeared in the *American Dairyman:* Total organic matter, 24.51; digestible protein, 2.5; digestible carbohydrates, 13.77; fat, .74; total digestible matter, 16.2 pounds. The function of water as regards animals is a most important and vital one. In the first place, there must be a sufficiency of water or you cannot maintain animal life, and Mr. Moore laid great emphasis on the fact that this water must be free from pollution if we wish our animals to be healthy and vigorous and their products wholesome. It must be recollected that past immunity does not necessarily imply a pure supply, and, further, that the action of water is most insidious, and there can be little doubt that many cases of diarrhœa and indigestion may be attributed to its effects, these often being the forerunners of more serious disorders. Before closing his paper Mr. Moore gave some valuable hints upon stabling and general management.

In the discussion which followed Dr. Dawes, in replying to a question on the subject, said that five pounds was about the most profitable quantity of ground meals that could be used, and that this must be mixed with some coarser food. Brewers' waste might be used if fed under proper conditions. In compounding a ration the price of various foods and the object for which you are feeding (for milk or for butter) must be considered. In reply to a question as to how long a cow should be milked, Mr. Moore thought that up to a month or six weeks before calving was quite sufficient. Dr. McEachran said that prairie-cows weaned their calves when about five months old, provided they were able to do so, and that in this province some dairymen allow their cows to be dry for four to five months, and the tendency to become dry early might possibly become hereditary. When closing the meeting, Dr. Baker thanked Mr. Moore for having brought such an interesting and important subject before the Society. Dairying was undoubtedly at the head of agricultural interests, and offered a wide field to the members of the profession. Many questions had been asked that evening which could not be answered off-hand; but in selecting a milch-cow, in addition to other signs, one should note the size and length of the milk-vein, and whether its course was straight or tortuous. In his opinion it was advisable to feed cattle three times a day, and whenever the weather permitted they should be let out. Water should be given in the barn, and if it was possible for them to have it constantly before them, so much the better.

The meeting then adjourned.

B. A. SUGDEN,
Secretary-Treasurer.

VETERINARY MEDICAL SOCIETY OF THE UNIVERSITY OF PENNSYLVANIA.

THE regular bimonthly meeting was held on Friday evening, March 5, 1897. Meeting called to order at 8 P.M., President F. Klein in the chair.

Minutes of previous meeting read and approved. Mr. J. Hernsheim and Mr. H. Marshall were appointed to look up addresses for sending out letters of inquiry regarding the location of graduates.

Receipts of the evening, $2.40. On motion of Mr. Hernsheim, the sum of $5.00 was appropriated to the Pasteur Monument Fund. The Librarian was authorized to purchase a number of books, among them being Dr. Glass's translation of Müller's *Diseases of the Dog* and Walley's last issue on *Meat inspection*.

Mr. Franz Euge gave a very interesting address on "Horseshoeing," laying special stress on frog-pressure as concerned in diseases of the foot and limb, and strongly recommended the use of the bar-shoe instead of the various pads.

Mr. Zaner reported a case of a five-year-old mare that appeared to be choked. After discussing the case Dr. Bertram gave his opinion that it was meningitis.

President Klein reported a peculiar case of œdema in a cow, extending from both sides of the head over the back and down the posterior limbs, and that the cow was given a simple saline purge and recovered in two days. Mr. Shaw was appointed to look up such cases and enlighten us on the subject at the next meeting.

Critic Shaw reported favorably. Programme for next meeting was read by Mr. Ranck. Meeting adjourned at 10 P.M., to meet March 19, 1897.

The bimonthly meeting was called to order by President Klein, Friday evening, March 19, 1897. Minutes of previous meeting were read and approved.

On motion of Mr. Hernsheim, the chair appointed Messrs. Blount, Gelbert, and Hernsheim as a committee to draw up a set of rules to govern our library and circulation of books therefrom.

Mr. Kirby presented the name of Louis D. Horner, of the class of '98, for membership.

The regular order of business was dispensed with, and Dr. Guy Hinsdale, a member of the Philadelphia Society for the Prevention of Tuberculosis, was then introduced, who addressed the Society on "Climates and their Relation to Disease," and also presented the members each with some valuable pamphlets and tracts on tuberculosis. On motion of Mr. Shaw, the Doctor received the unanimous thanks of the Society for his kindness. On returning to the regular order of business, Mr. Horner was duly elected to membership.

On motion of the Secretary, Dr. Harshberger received the thanks of the Society for reading matter donated by him to our library.

Mr. Blount read a paper on "Oleomargarine." Mr. Hernsheim read a paper on "How Can a Veterinarian Improve His Education?"

Mr. Kirby responded to the referred question, "When, Where, and by Whom was the First Plow Used?" Mr. Shaw responded to the referred question regarding the case reported by the President at the last meeting.

The Secretary read a letter from Dr. Salmon, expressing his personal thanks for the Society's donation to the Pasteur Monument Fund.

The critic of the evening, Mr. Lushington, read a favorable report. Mr. Ranck read the programme for the next meeting. Society adjourned at 10.30 P.M.

JOHN E. SPINDLER,
Secretary.

MANITOBA VETERINARY ASSOCIATION.

THE Provincial Veterinarians met at Winnipeg, along with other associations. President M. Young, of Manitou, in the chair. For the ensuing year the Directors chosen were: Drs. Young, Torrance, Dunbar, Rutherford, Thompson, Swinnerton, and Hinman. The Directors elected the following officers: President, W. J. Hinman; Vice-President, F. Torrance; Secretary-Treasurer and Registrar, W. A. Dunbar; Examining Officers, Messrs. Hinman, Torrance, and Dunbar; Auditors, Drs. Hinman and Thompson. Several interesting professional papers were read and discussed. A committee composed of Drs. Torrance, Young, and Rutherford was appointed to wait on the Pure-bred Cattle Breeders' Association and urge that Association to take action in the matter of tuberculosis inspection and certificates. It was decided that the next meeting of the Veterinary Association should take place at Winnipeg during the time of the Provincial Exhibition.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE meeting was called to order March 3d, at 8.30 P.M., at the Academy of Medicine, with the President, Dr. Huidekoper, in the chair. On roll-call the following members responded: Drs. Amling, Bretherton, C. C. Cattanach, J. S. Cattanach, Delaney, Ellis, Huidekoper, Hanson, Loomes, Machan, Miller, Murphy, Neher, O'Shea, Robertson, Ryder, and Winslow (17).

The minutes of the previous meeting were read and approved. Dr. Hanson read a carefully prepared paper on "Examination of Horses for Soundness," which was freely discussed by the members present. Moved and seconded that a vote of thanks be tendered Dr. Hanson for his paper; carried.

The Judiciary Committee (Dr. O'Shea, chairman) reported progress. Moved and seconded that the report be accepted; carried.

The Publication Committee, by President Huidekoper, reported progress. Moved and seconded that the report be accepted; carried.

An application for honorary membership was submitted as follows: "We hereby propose for honorary membership in the Veterinary Medical Association of New York County the name of Dr. W. Herbert Lowe, as a man whose every aim is for the advancement and elevation of the veterinary profession; taking a keen interest in veterinary and scientific associations in general, and an especial interest in this Association." Signed by Robert W. Ellis, H. D. Hanson, and J. E. Ryder. Referred to the Board of Censors, to report at the next meeting.

Dr. Neher reported a case of "Fatty Infiltration of the Heart in a Dog."

Additions to By-laws to be considered at the next meeting, to wit: Moved and seconded that in the discussion of papers each member shall be entitled to one hearing only, not to exceed five minutes, and that he shall confine himself to the subject, and the essayist shall make one final reply, closing the discussion.

Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS, D.V. S.,
Secretary.

The following resolutions were adopted by the New York State Medical Society at their last annual meeting:

It is the opinion of this Society that the State Board of Health should be permitted to make such regulations under the law as will provide for the proper inspection of suspected cattle and for the destruction of diseased animals, and especially that the services of a competent pathologist should be employed whenever such seem essential to the conduct of the service; but that we are not in favor of placing this important duty in the hands of a State Veterinarian except he be under the absolute control of the State Board of Health with reference to appointment, duties, and salary.

GLEANINGS.

A malignant and fatal outbreak of diphtheria in a section of West Philadelphia was noted to be associated with a similar condition among the cats equally severe in character and with marked throat lesions. By order of the Board of Health the cats were destroyed so far as possible.

A local outbreak of cerebro-spinal meningitis occurred in Kent County, Maryland, in March. Oat straw was supposed to have conveyed the germs.

At the Veterinary Department of the University of Pennsylvania, under the direction of State Veterinarian Pearson, several tuberculous cows are being treated with tuberculin and kept under the best hygienic conditions as a means of arriving at a better knowledge as to the value of this agent as a curative measure, and whether it is possible to use it in cases of mild tuberculosis with practical results.

Veterinarian Horton, of Providence, Rhode Island, reports the successful use of Sanmetto in a severe case of azoturia. The horse was down for forty-eight hours, regained his feet inside of seventy-two hours, and at the expiration of five days was placed at work.

A noted sheep raiser of Ohio, in the *Breeders' Gazette*, recommends the castration of lambs at the age of ten days. In docking, hot iron pincers are used to avoid hemorrhages.

The use of turpentine in burns is strongly extolled by Dr. McInnis in the New York *Medical Record*. Well sprinkled on a pad of absorbent-cotton, and applied, it aids the healing process very measurably. Endeavor to keep it applied to the burned surface only.

The most useful syringe for the administration of medicine by the mouth is a half-ounce hard-rubber one with a ring attachment to the piston-rod. The tongue may be held with one hand and the medicine syringed far back in the mouth, the ring aiding one by inserting the thumb in it, thus giving more force and not slipping off, as with a button-end rod. The amount given results in no loss, which often occurs in a larger-size syringe, which has the additional objection of not being so easily handled. Mouth-washes, tonics, mild stimulants, neutral fever mixtures, etc., are readily given this way without loss or interference with the taking of food or the worriment of drenching, which requires two persons.

Indiana possesses a law for liening colts, where the stallion is registered and licensed in accordance with the provision of the law.

But one importation of Percheron stallions to the United States was made in 1896.

Trichiniasis is rampant among the soldiers of the 104th Regiment at Chemnitz. Fifty-six of them are in the hospital, and fourteen have died as the result of eating pork of German or Bohemian raising.

One joint of beef out of every three consumed in London and the immediate district is American refrigerated beef.

A blunder occurred recently in one of our Eastern stock-yards where a detained storm-bound car-load of sheep was condemned by a local inspector for scab, which, on more careful and mature investigation by a veterinarian summoned by the shipper of the sheep, revealed only a loss of hair in some nineteen of the load, due to hair-pulling and biting incidental to the detention without food and water. This raises a serious question as to whether civil-service examination is yet broad enough to cover the needs in this service of our government, for a properly equipped inspector would hardly have committed this error, even if ever so careless. A government inspectorship for too many years was regarded as a sinecure or bounty, and as it was formerly obtained by political influence chiefly, and was only good for a term, it was considered unnecessary by the large proportion of those holding these positions to keep the dust from their text-books or read the journals so that every aspect of their work was fresh in their minds and they were equipped for every feature of their work. This, as well as disobedience of federal orders, must now be recognized as sufficient cause for dismissal from duty, and should be a lesson to all in the service that the government expects faithful work, and scientific in character also.

Robert T. Kneebs, on his second trial in Germany for bringing on the track the mare "Bethel" under the name of Nellie Kneebs, has again been convicted. He was sentenced to nine months imprisonment, to pay a fine of one thousand marks, to confiscation of his mare, and loss of civil privileges for two years. Prof. Eggling, the veterinarian sent to this country, testified against Mr. Kneebs.

A Flemington, N. J., cow, dying suddenly, an autopsy revealed pericarditis. Thirty-five nails from one to five inches long, sixteen stones about the size of walnuts, a carriage-bolt four inches long, and a padlock were found in the stomach. One of the nails had pierced the walls of the stomach and entered the muscular walls of the heart.

The Paterson, N. J., Veterinary Hospital has recently undergone a number of changes, making it more complete and perfect in its facilities. New canine-wards with special modern appliances; a bathtub in the equine department with hot- and cold-water connections; a specially fitted-up, large, padded stall for colic and other violent cases; enlargement of the pharmacy, and the introduction of electric lights throughout the building, are among the changes introduced by Veterinarian Lowe.

Veterinarian Bowles, late of Richmond, Va., is now a salesman in one of Pittsburg's queensware stores. Dr. John H. O'Brien is now practising human medicine and surgery in the Smoky City. Dr. Charles Spicer is a retouching artist in a photograph gallery of the latter city. They represent the Classes of 1886, 1892, and 1889, respectively, of the Ontario Veterinary College. Such are the shadows over the paths of veterinarians.

The employment of veterinarians in the preparation of popular articles on well-known diseases and lameness of horses for holiday numbers of the leading sporting and breeding journals and the almanacs of certain well-known live-stock periodicals is a hopeful sign of the times.

The present low prices of horses in the United States should be a means of supplanting the dog, cow, and ox in many parts of Europe where heretofore the high cost of horses led to the impounding of these animals as burden-bearers.

Fears are entertained by Western live-stock raisers that the reciprocal arrangements just entered upon between Canada and the United States whereby an interchange of cattle through ports where inspections can be made will militate against the Western cattle-grower and favor the Canadian raiser to this extent.

Captain H. I. Smith, of Iowa, a large owner of stock, is reported to have contracted tuberculosis from diseased cattle. A year ago State Veterinarian Stalker destroyed a number of tuberculous animals on Captain Smith's farm.

Chicago's horse-meat establishment ships a carload of horse corned-beef every three weeks to Rotterdam, Holland.

The *Breeders' Gazette* quotes the noted thoroughbred owner, John J. McCafferty, on long tails, as follows: "In the first place, a long tail on a horse is useful to brush off flies in hot weather. A horse whose tail has been banged will fret and become very restless in fly-time, when attacked by a fly, as he has no means of getting rid of it. Even in the stall he scrapes and frets until he is worn out, and many times a horse will rub all the hair off his hip-bones in his efforts to rub off some insect which is annoying him. With a long tail a horse can whisk it around and dislodge a fly from almost any part of his body. This is my first reason. Again, a horse is not nearly as liable to be cut down in a race when he has a long tail as he has when banged, for this reason: When a horse is running his tail sticks out similar to a flag in a high wind. This being the case, a horse coming from the rear cuts either to the inside or outside as soon as he catches a glimpse of a horse's tail in front of him. Consequently the longer the horse's tail the less liable is a horse to jump on him. Nervous horses always train better with long tails. They are generally thin-skinned and have short hair, consequently are bothered with insects more than a thick-skinned horse, and a long tail is almost a necessity to keep them from fretting and scraping until they become so weak and ill-tempered that they are not fit to race. I have found quite a difference between a thin-skinned horse and a thick-skinned horse. The latter class I have found very lazy, and have to be pushed to work. They also have a very heavy coat and do not answer to the whip and spur as readily as a thin-skinned horse. My reason for running horses high in flesh is the fact that they run stronger and run longer. A horse with plenty of flesh on his bones will run race after race without feeling it, while a horse keyed up to the highest pitch will surely go back after a race and has to be indulged before he is fit to race again. I am a great believer in running horses high in flesh."

PERSONAL.

Dr. John W. Adams was a participant in the annual reunion and dinner of the Philadelphia Chapter of the Psi Upsilon fraternity.

Mr. J. H. Brigham, Master of the National Grange, has been tendered and will accept the post of Assistant Secretary of Agriculture.

Veterinarian A. T. Sellers, of Camden, New Jersey, takes an active interest in the work of the Humane Society of that city.

Dr. A. K. Robertson, of Brooklyn, N. Y., has been on the sick-list. We are glad to report his convalescence, and trust that it may be complete.

Dr. Charles Bland, of Philadelphia, has been a sufferer from a severe sprain of the arm received in the performance of his professional duties.

Dr. James Fairley is associated with his brother in the ownership of a Broad Street livery stable.

Dr. William J. Denton, of Philadelphia, is nursing an injured arm, the result of a bite of one of his canine patients.

Dr. J. L. Ronan, of Corning, New York, after an illness which confined him to his bed for six months, is again at his post of duty.

Veterinarian W. J. Waugh, of the United States Army, has come east on a fifteen days' leave of absence. He will spend a good portion of his time with his brother, James A. Waugh, of Pittsburg.

Dr. W. B. E. Miller, of Camden, N. J., will be a candidate for reinstatement to a position in the Bureau of Animal Industry under the new administration.

Veterinarian W. N. Leavy, of New York City, has placed on the streets a very attractive canine ambulance in connection with his hospital.

Dr. George H. Bailey, of Deering, addressed the Maine Academy of Medicine and Science on February 8th on "Animal Tuberculosis." Those assigned as speakers in the discussion were Drs. J. F. Hill, Jesse A. Randall, Enoch Adams, Ernest W. Russell, A. L. Stanwood, Ex-Governor Cleaves, and Colonel Dow.

Veterinarian Hugh F. Doris, a student of law at a West Virginia college, has become the defendant in a $20,000 law-suit, the outgrowth of a horse deal.

The Western Humane Society of Pittsburg, Pa., has made the following appointments of veterinarians for the present year: Dr. James A. Waugh for Pittsburg proper, Dr. N. Rectenwald for the south side, Dr. H. S. Richards for the east end, and Dr. Charles M. Bond for the Allegheny district. This adoption of a staff of veterinarians will increase the Society's usefulness and facilitate prompt action whenever required.

Dr. E. H. Flood, of Philadelphia, late inspector of cattle for foreign shipment, has formed a copartnership with Dr. John A. Pearson, of Chicago. They have purchased the practice and hospital of the late Dr. William Tag.

At the twenty-fifth annual meeting of the Wisconsin Dairymen's Association in February Prof. E. A. A. Grange gave a practical address on diseases of the udder in cattle.

The Doylestown, Pa., *Intelligencer* of February 5th contains a very pointed article on bovine tuberculosis, for cattle-owners and dairymen, from the pen of President Ridge, of the State Association.

Veterinarian C. Howard Davidson, of Millbrook, New York, recently became a member of the American Berkshire Association.

Veterinarian J. D. O'Rourke, of San Francisco, Cal., holds the position of veterinarian to the city and county boards of health of that district.

Dr. John W. Adams has an excellent article on the bar-shoe in the *Horseshoers' Journal* for February and March.

Dr. E. H. Sheppard, of Cleveland, Ohio, is lecturing to the shoers of that city. Dr. M. J. Dunn, at Detroit, and Dr. Carter, at Saginaw, Michigan, are performing the same services for the shoers.

The United States Veterinary College at Washington has instituted a course of lectures for the horseshoers of the capital city.

Dr. F. C. Grenside, formerly of Guelph, Canada, has engaged in the export trade of horses to Europe. With others he has formed the American Horse Export Company.

Dr. George H. Bailey, of Portland, Maine, has been elected a Vice-President of the International Horsemen's Association recently organized at Chicago, Ill.

Veterinarian W. B. Stauffer, of Philadelphia, has opened an equine and canine infirmary in connection with his outdoor practice.

Dr. Charles Gresswell has just been reappointed State Veterinarian for Colorado by Governor Adams for a term of two years. This is a third term for Dr. Gresswell, he having been appointed by three different Governors.

Veterinarians F. S. Roop and George C. Faville hold the position of Assistant State Veterinarians in Virginia.

Dr. F. S. Shannon and H. B. Adair, recently stationed at Milwaukee in the meat-inspection department, have been transferred to the quarantine division, and assigned to duty at ports of entry on the Mexican border.

Ex-Secretary H. P. Rogers, of the Massachusetts Veterinary Association, was a visitor to the JOURNAL office in March. His vacation of a few days enabled him to visit Washington also.

Dr. James A. Waugh was veterinarian to the Duquesne Kennel Club show in March.

Secretary Edge, of the Department of Agriculture of Pennsylvania, has been compelled by illness to cease work, and on a leave of absence has gone on a trip in search of rest and renewed health. We wish for him an early and complete recovery.

Veterinary Surgeon Desmond, of Warrnambool, Victoria, has been appointed teacher of bacteriology and microscopical technology at the Melbourne Veterinary College.

Dr. A. W. Knight Tuck, of Melbourne, Australia, succeeds to the practice of Veterinary Surgeon Desmond at Warrnambool, Victoria.

Professor R. S. Huidekoper, of New York City, has recently received an appointment from the government of South Africa as resident inspector at the port of New York for all live-stock destined for shipment to any portion of the above-named country.

Dr. James A. Waugh, of Pittsburg, has purchased the practice and leased the hospital of Dr. John Doris, deceased.

Dr. David Waugh, graduate of the Indianapolis Veterinary College, will take an assistantship with his brother at Pittsburg.

Dr. R. S. Huidekoper, of the JOURNAL, will deliver in March and April a course of four lectures at the American Horse Exchange, New York City, on the exterior of the horse.

W. J. Hinman, V.S., of Winnipeg, Manitoba, has just returned from a trip to England.

Dr. J. C. McNeil and Superintendent of Police Lesley, of Pittsburg, were visitors to the JOURNAL office in March.

Dr. G. A. Johnson has been reappointed city meat-inspector for Sioux City, Iowa.

State Veterinarian Pearson has become a charter member of the Nittany Rod and Gun Club, with special rights and privileges in Centre County, Pennsylvania.

The experience of Dr. D. D. Lee, of Boston, in castrating the wrong donkey, terminating in a law-suit for damages, with a verdict for the plaintiff, adds another experience in the line of responsibilities that continue to heap themselves on the shoulders of the profession. Two donkeys on opposite corner lots seem loaded with danger to the approaching veterinarian.

SEEN AND HEARD IN MANY PLACES.

The New York State Veterinary College has succeeded in getting in the State supply-bill an item of $30,000 for maintenance. This assures the school continued support by the State.

Veterinary Surgeon Desmond, of Warrnambool, Australia, has a territory of two hundred and fifty miles to cover. His nearest colleague was one hundred and twenty miles away. Surely there was little chance for mingling views with his fellow-practitioner, and it must have been long waits between consultations.

The commencement exercises of the Kansas City Veterinary College this year will partake of a social character rather than a public function. The conferring of the degrees will be followed by a banquet.

The Atlantic Transport Line from New York, now engaged in seeking the foreign shipment trade in horses, has established a veterinary service corps in connection therewith. Each vessel has a veterinarian attached to the staff of officers, and all sickness and accidents among the horses are given professional attention. This is a wise movement.

The Milk Department of the Philadelphia City Board of Health in it annual report comes out strongly against the sale of milk in sealed jars and glass vessels.

The Buffalo *Horse World* inveighs strongly against the present law of the Empire State regarding the practice of the shoeing craft. The opposition is caused by the fact that one of their shoers was so indifferent to the existence of the law regulating the craft that he failed to register under its provisions. He subsequently presented himself, but failed in the examinations.

Maine has on hand a serious case involving the sale by one of her city butchers of a lot of cattle which had been condemned as tuberculous and ordered to be placed in the rendering-tank. Such daring effrontery as this should be most severely punished.

Practice in Iowa is reported by one of our correspondents as better in some localities, but throughout the State generally quiet.

In Mexico, turkeys, like sheep, are driven to market through the main streets.

A baby elephant in the winter-quarters of Dr. W. A. Conklin, in Brooklyn, having contracted a cold, was given quinine and whiskey for the same. He then gained access to the source of supply, became intoxicated, and encountered a huge phyton, which ended in the death of both elephant and snake.

The Poland China boar hog Happy Union brought the phenomenal price of $4000 at a sale in March at Jefferson, Iowa. He was bought by a syndicate of raisers. This sounds like the fabulous sums paid for standard-bred horses a few years ago, and may end in a grand crash, just as those prices in equine stock did, and from which recovery is very slow.

The Secretary of the Percheron Horse-breeders' Association gives as an additional reason for docking the sanitary proposition that it is an aid toward cleanliness.

"Ben," a venerable carriage horse at Long Branch, New Jersey, died recently. He was buried in state, and a tombstone was erected to his memory. He was forty-two years old.

In Paris they first utilize rats to clear the flesh from the bones of carcasses, then kill the rats, use their fur for trimmings, their skin for gloves, their thigh bones for toothpicks, and their tendons and bones for gelatin wrappers.

The owner of the stallion Allerton requires the following qualifications for mares to be stinted to this horse: They must be fashionably bred; their color must be bay, brown, black, or chestnut, with dark manes and tails; each mare must be from 15.1 to 16 hands high; all must be sound, stand square on their feet, and neither toe-in nor toe-out. They must all be square-gaited trotters (pacing mares by pacing horses will not be accepted). The limit of age will run from three to fifteen years. A mare over thirteen years old must have produced a fast trotter or have a fast trotting record herself. It will be interesting to watch the outcome of this wise step.

A recent shipment of horses from Nebraska to the vicinity of Philadelphia proved to have at least three cases of glanders in the lot. The balance of the shipment having been sold at a dispersal sale, their condition is not traced.

In a shipment of horses from the West to Boston a number of cases of glanders were discovered. Is it not time for us to have some interstate equine inspection?

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RABIES IN SHEEP, WITH INOCULATION EXPERIMENTS ON RABBITS.

BY A. W. CLEMENT, V.S.,
STATE VETERINARIAN, MARYLAND,

AND

WILLIAM ROYAL STOKES, M.D.,
BACTERIOLOGIST TO THE HEALTH DEPARTMENT AND LECTURER ON BACTERIOLOGY IN THE BALTIMORE MEDICAL COLLEGE.

IN the month of July, 1896, a gentleman from Mullikens, Prince George County, reported "a strange disease" among his cattle and sheep, from which several had died and of which others were ill. I visited the farm the day after receiving notice of the outbreak, and heard from the owner the history of the outbreak and his observation of the symptoms.

He had twenty young cattle running in a field with abundance of shade, water, and grass, and in fine order. Two steers died first, within a day or two of each other, after a short illness. Ten days later a third steer was attacked similarly and died, and a month after the first steer was taken sick a fourth one died. When I arrived I found the fifth steer dead, but none of the remaining number appeared sick.

The symptoms as described by the owner were as follows: "At first they began to lose flesh rapidly. A few days afterward they isolated themselves and remained perfectly quiet. They would neither eat nor drink. After remaining in this condition two or three days they lost, to a certain extent, control of their hind legs and staggered as they walked. They then became very vicious and would attack any object, and bellowed constantly until they died."

The autopsy which I made upon the steer found dead showed no lesions whatever, though a thorough examination (excepting the brain and spinal cord) was made. I could make no diagnosis, and so informed the owner.

It was stated that a mad dog had passed through the neighborhood about Easter; but I, unfortunately, did not pay much attention to the statement, as it was some time before the hydrophobia excitement in Baltimore, and I had not seen a case of rabies since I was in Paris, ten years before. I did not believe that the dog had rabies.

About January 1st the same gentleman wrote me that he had lost several sheep on the same pasture where the cattle fed. Under date of January 4th he wrote that eleven had died, and he had discovered another lamb affected that afternoon. He described the symptoms as follows: "The face swells on both sides just below the nose, and one of the animals looked first to one side and then the other, as if in pain. They do not appear to suffer much, as a rule, and some of them eat a little. They all have the same vicious propensities from the commencement of the attack, which increase as the disease develops. As a general thing, they live about four days." As to the cause, the gentleman cited the observation of a neighbor, who said that he saw a dog chasing his own sheep about ten days before; since then he had lost three. He further wrote: "A dog has not been in this flock since last Easter, when three were killed, and some of the lambs which have since been affected were not born then."

In answer to this letter I asked the owner to ship me by express, well boxed, a live sheep affected with the disease, whatever it might be, for the purpose of making a thorough clinical observation and also that the condition might be most favorable for autopsy, cultures, and inoculations. Accordingly, on the morning of January 6th there arrived in Baltimore by express a full-grown ewe. This animal was secured in a crate. When not disturbed at all it would lie or stand perfectly quiet, except occasionally, when it would butt its head against the slats, as if attacking an imaginary object. No matter how quiet it might be, however, on the least irritation, such as kicking on the slats, making any extra noise, or even when one stood in front of the cage, it would butt the slats with all the force possible. There was nothing else observable about the animal as indicating disease. There was no frothing at the mouth, and the peculiar expression so characteristic of rabies in dogs was absent. At noontime the sheep was removed from the crate and placed in a box-stall. The excitability appeared to increase, and the animal became gradually weaker. In the morning it was found lying on its side, unable to rise. There were clonic convulsions of the legs and severe opisthotonus. It needed only the touch of one's hand or of a stick on any part of the body to bring on the most aggravated convulsions. She died in one of these convulsions at 6 P.M., in the presence of Dr. Stokes and myself.

At 8 P.M. a careful autopsy was made, and cultures taken from the blood and organs. The result of the autopsy was negative. The brain was most carefully examined. Portions of the brain and medulla were reserved for rabbit inoculation. Appended will be found a description of the biological examination, made by Dr. Stokes.

In a letter of January 14th the owner says: "None have died since Friday, when four were buried. I have lost so far eighteen. The flock now looks more healthy. A gentleman who lives about four miles from here, I am informed, lost during the fall some sheep affected in the same way."

Biological Examination. The medulla was removed from the skull under antiseptic precautions, and a small portion of the tissue from the floor of the fourth ventricle was rubbed up with sterile water in a sterilized porcelain crucible. Two rabbits were then prepared in the following manner: The heads were shaved and a 5 per cent. solution of carbolic acid applied on cotton for about five minutes. A longitudinal incision was then made through the skin in the median line and the dura mater exposed by means of the trephine, the operation being performed under antiseptic precautions. About ten cubic centimetres of the suspension of the medulla were then injected beneath the dura of each rabbit and the wound closed.

Both animals were kept under daily observation, but nothing of interest was noted until the tenth day after the operation. Rabbit No. 1 then began to show characteristic symptoms. These symptoms began with slight incoördination of the muscles of locomotion when running. The symptoms of incoördination gradually increased, especially rapidly behind, followed by almost complete paralysis of the hind extremities, finally involving the front legs so that the animal was unable to move, in which condition he died on the eleventh day. The autopsy and the cultures of the blood and organs were negative. During the sixteenth day the second rabbit showed similar symptoms, together with clonic convulsions, and died on the seventeenth day. Autopsy and cultures were negative. (The first rabbit died during the night, so that the presence or absence of clonic convulsions was not noticed.)

The temperature of both animals during the period of incubation averaged 102°, but fell to 100° after the beginning of the attack.

Diagnosis. Rabies caused by transferrence of the virus of this disease from the medulla of the sheep.

Conclusions. The clinical symptoms of the sheep, the negative result of the autopsy, and the positive result of the inoculations point conclusively to the diagnosis of rabies. If this animal had rabies—a fact we believe beyond dispute—the other animals on the farm and on the two neighboring farms must have had the same disease.

Had inoculation experiments been made from the brain of the steers which died early in the summer the diagnosis would have been made then. This, however, would not have prevented the second outbreak of the disease, because undoubtedly the sheep died from subsequent inoculation from the bite of a rabid dog. Neither will the present knowledge of the case prevent further trouble unless something is done to check the spread of the disease in dogs. A well-bred dog is an animal most useful and companionable, but that is no reason why irresponsible people should own wild curs and allow them to run at large. A good dog-law, well enforced for a few months, would make rabies an unheardof disease. It is a disease communicable only by inoculation, and, of course, cannot arise spontaneously.

We are much indebted to Dr. N. G. Kierle, medical examiner, and to Dr. John C. Moffit, for assistance in the technique.

ATRESIA OF THE RIGHT POSTERIOR NARIS IN A MARE.

By W. L. Williams, V.S.,
PROFESSOR OF SURGERY, NEW YORK STATE VETERINARY COLLEGE.

The subject, a small brown mare, aged four years, used for delivery by a retail butcher, had been recently purchased without a reliable history as to the date of the advent of respiratory difficulty, but it was said that she had suffered from an increasing dyspnœa for about one year.

As this is the date at which the animal would ordinarily be first put to work, in all probability the difficulty in breathing was merely not noticed until brought out prominently by labor.

Presented at the free clinic, October 9, 1896, it was observed that rapid driving caused severe dyspnœa and roaring, while at rest the respiratory sounds were normal, but the ingress and egress of air were confined wholly to the left nostril, the right being functionless.

Inspection revealed no facial deformity, no definite dulness nor want of resonance over any of the facial sinuses, no nasal discharge or odor, no cough, and no abnormality upon manual exploration of the mouth and pharynx.

The symptoms observed, in conjunction with the history of a gradually developing dyspnœa of a year's duration, led us to believe that we had to deal with a neoplasm encroaching upon the right nasal conduit.

On the following day the animal was cast and two exploratory openings made—one into the inferior maxillary sinus, near the fang of the fourth molar; the other against the median line of the face, on a level with the lower margin of orbits. No abnormality could be discovered from either, except that the turbinated bones, normal in structure, approached more nearly to the septum nasi than usual, until an attempt was made to pass a sound from the second opening through the posterior naris, which was found impossible.

After a prolonged effort and the use of as great force as seemed prudent the sound suddenly passed through into the pharynx, and upon its withdrawal a small quantity of air passed out through the right nostril, and blood passed from the nostrils into the pharynx, leading us to the erroneous conclusion that we had encountered a neoplasm and had passed the sound alongside between it and the bony walls of the posterior naris.

We were unable to learn the form, character, size, or attachments of the obstruction; concluded that a successful operation was impossible, and abandoned further attempts at surgical interference.

It was noticed that the patient now forced some air through the right nostril, and continued to do so; but its significance was not understood, and believing restoration of the animal to usefulness impossible, she was destroyed on November 26th and an autopsy made.

No neoplasm was found, but across the right posterior naris, continuous with the nasal mucosa on the outer and the pharyngeal mucosa on the inner side, was a thin, hymen-like membrane, stretching like a drum-head between the palatine, ethmoid, and vomer bones, completely occluding the opening except for a small rent in its centre, oval in form, three-fourths by one-half inch in diameter, the result of the accidental opening made with the sound at the time of our exploratory operation. The occluded right posterior naris measured transversely from vomer to palatine bone seven-eighths of an inch, while the left measured one and one-half inches. The tissues were all healthy and showed no evidence of pre-existing disease of any kind, indicating clearly that the abnormality was congenital.

The cause of the deformity must be referred to early embryonic life after the endoderm of the ovum had, by infolding, produced the primitive intestine, ending anteriorly in the pharynx, in front of which the olfactory pits develop, but are for a time separated from the pharynx by a thin septum, which, becoming obliterated, brings about the opening known as the posterior naris.

In this individual the septum had become obliterated on the left side, while on the right the development had become arrested, the septum, as a result, persisting.

The bibliography relating to this form of arrested development is exceedingly limited.

Through the aid of my colleague, Dr. Law, I have been enabled to find the record of one similar case by Prof. Gamgee (*Our Domestic Animals in Health and Disease*, p. 622), who relates an instance observed by Hering in 1842, in which a filly, two and one-half years old, was presented to Prof. Hering for advice regarding a severe dyspnœa and roaring, which had been observed for a year. No evidence of tumor or other neoplasm or pathological condition could be found to explain the roaring, except that it was found that the right nostril was impervious to air and that a flexible sound could not be passed into the pharynx through the right nasal passage. Failing, like me, to make a diagnosis, the filly was destroyed, and, as in our own case, the autopsy revealed a thin septum stretched across and completely closing the right posterior naris, and, in full accord with our views in this case, he considered the cause an arrest in development in the early embryonic stage, by which the septum, at that time normal, failed to undergo that obliteration which should naturally follow.

Perhaps the deformity is more common than records would indicate, and it would seem not unlikely that in some cases both septa persist, leading, especially in foals, to early death, owing to the difficulty it has in breathing through the mouth; hence it would seem well for veterinarians to have in mind the possibility of the occurrence of this peculiar form of arrested development, its diagnosis and treatment.

The diagnosis offers no great difficulty to the veterinarian cognizant of the occurrence of such an abnormality. We observe:

a. Dyspnœa and roaring.

b. Imperviousness of the affected passage to air.

c. The absence of any neoplasm or tumors in the nasal passages or sinuses, or of dental or other diseases leading to suppuration or other changes capable of interfering with respiration.

d. The nasal passage and nostril free; though, perhaps owing to non-use, the turbinate bones are nearer to the nasal septum than ordinarily observed.

e. The posterior naris closed, as shown by the impossibility of passing a sound into the pharynx, but permitting the sound to pass over the naris until the ethmoid bone is reached.

f. The Polansky-Schindelka rhino-laryngoscope would enable one to observe the actual condition of the deformed part.

The Gunther Eustachian catheter should prove an excellent sounding instrument, or in its absence an effective sound of similar form could be improvised—that is, a rod about one-fourth of an inch in diameter, with a slight curve anteriorly, commencing about two inches from the anterior end. With this sound measure the distance from the superior angle of the nostril to the lachrymal angle of the orbit, which will about equal the distance from the inner border of the nostril to the centre of the posterior naris.

Passing the sound along the floor of the nasal chamber, it will be found that when it reaches the point indicated by the measurement, instead of passing *downward* into the pharynx, it glides *upward* for a distance of two or three inches and stops against the ethmoid bone. A common flexible horse-catheter would answer the purpose well, but perhaps not so well as the metallic sound.

The treatment is exceedingly simple, and consists merely in pushing the curved end of the metallic sound through the membranous partition, and then enlarging the opening, or an opening may be made alongside of the septum nasi, just below the frontal sinuses, and an ordinary pair of curved forceps of sufficient length passed downward between the septum or vomer, striking the persistent membrane almost at right angles and rendering its rupture and laceration to any degree desired readily accomplished. The removal of the lacerated portions would be quite unnecessary.

A satin-lined burial-casket covered the remains of a Long Branch dog, whose master thus attested to the fine qualities the animal exhibited.

TETANUS.[1]

By Leonard Pearson, V.M.D.,
PHILADELPHIA, PA.

Tetanus of horses is a disease that has been known since the earliest times, and was described by Apsyrtus during the fourth century. The views in regard to this disease that have prevailed at various times have differed widely, and it has variously been ascribed to an "inflammation of the blood," an injury to the brain or spinal cord, a peculiar electrical condition of the atmosphere, foods of various kinds, etc. Subsequently tetanus was divided by the writers of text-books into several varieties, particularly traumatic, rheumatic, idiopathic; and each of these forms of disease was ascribed to different causes. It was not, however, until the researches of Nicolaier that the real cause of tetanus was discovered. Nicolaier's first announcements were published in 1884, and they were amply supported and confirmed by the researches of Kitasato, published in 1889. Kitasato was successful in isolating and in growing, in pure cultures, the tetanus bacillus, and he proved by the inoculation of animals that the disease could actually be produced by the bacillus that he had isolated and described.

The tetanus bacillus is an organism of rather peculiar shape. It is rather long and slender, and has a round enlargement at one end, which contains a spore. This bacillus has been found in earth, in pus, in manure, and in the secretion from infected wounds. The bacillus is isolated in the laboratory with much difficulty, because it will only grow where there is an absence of oxygen.

The spore of the tetanus bacillus is quite resistant, very much more so than the bacillus itself, and it requires heating at boiling temperature from two to five minutes to destroy it. The isolation of the germ in the laboratory is based upon this characteristic, and is carried out after the method first described and employed by Kitasato. A small quantity of the material to be examined is exposed for an hour at a temperature of 80° C., and in this way all of the bacteria and most of the spores in the substance, with the exception of the spores of tetanus, are destroyed, and the inoculation of culture media with material so treated enables one to obtain a pure culture of the tetanus bacillus without much further difficulty. The tetanus bacillus, and particularly its spores, is not only resistant to heat, but to other conditions that are unfavorable to the growth of germs. For instance, it requires exposure to a 5 per cent. creolin solution for five minutes or to 5 per cent. carbolic acid solution for ten hours to destroy it. A 5 per cent. carbolic acid solution, together with 0.5 per cent. of hydrochloric acid, destroys these organisms in twenty-five minutes. A particularly strong antiseptic for the spores of the tetanus bacillus is trichloride of iodine. This fact was discovered by Behring, and has been made use of in a number of important experiments. These germs are not only resistant to the digestive fluids, but they may even multiply in the digestive tract. This accounts for their presence in the manure of horses.

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[1] Read before the meeting of the Pennsylvania State Veterinary Medical Association, Philadelphia, March 2, 1897.

The tetanus bacilli are so widely distributed, and find the conditions outside of the living body so favorable to their existence, that opportunity for infection is abundant, and there are few places that are entirely free from this disease, although it is far more prevalent in some localities than in others. The manner in which the bacillus is introduced into the living animal is a matter of considerable moment as regards the danger of such inoculation, since the organism will not grow in the presence of oxygen; all inoculations with the tetanus bacillus are not dangerous, but when the organism is introduced deeply into the tissues away from the air, or when it is introduced with other germs that use up the oxygen in the surrounding parts, tetanus may develop.

The wounds that are especially apt to be followed by the development of tetanus are wounds made by objects that have been in contact with the earth, and are therefore most apt to contain tetanus germs. For instance, pricking of the foot is especially dangerous in this respect, and a calk-wound of the coronet is also accompanied by considerable danger, as it is likely to be made by an object that has been in contact with earth and manure, and to be coated with more or less tetanus bacilli. A deep puncture with a piece of wood, castration, and docking have also been followed in many cases by tetanus. The use of clamps in castration was frequently followed by tetanus in the olden times, when it was not customary to disinfect these instruments. The infectious wound-secretion containing the bacilli and spores of tetanus would in this way be carried from one colt to another, and the death of a large proportion of the animals castrated by certain operators or in certain districts was not uncommon. The not rare cases of tetanus that occur without an external injury are explained by the assumption that infection has taken place through a wound that was so small as to escape notice, or that infection occurred through the mucous membrane of the intestinal canal.

The disease, tetanus, is caused by the tetanus bacillus by means of a toxin, or ptomaïn, that is developed by this germ. This substance is produced by the germs at the point of inoculation. It is carried by the circulation to all parts of the body, and its action on the central nervous system is such as to produce the muscular spasms that are characteristic of the disease. The toxin of tetanus is also produced when the germ is grown in culture-media in the laboratory, and it has been found that the injection of a small quantity of toxin that is entirely free from living organisms will produce the symptoms of tetanus. The power of this toxin is extraordinary, and but a very small quantity of it will produce death.

The rapidity also with which the toxin is developed is astonishing. Kitasato has found, for instance, that when mice are inoculated at the root of the tail, and afterward the skin and subcutaneous tissues around the inoculation are removed and cauterized, the treatment is without avail unless it is performed within one hour after the inoculation. In cases of tetanus toxin is found in the muscle-juice, the blood, the urine, and in the milk. As the toxin gradually passes from the point of inoculation, where it is developed, into the general circulation, it is noticed that rigidity of the muscles begins in the inoculated member or part of the body and gradually extends to the more distant portions. It has been shown by Nocard that by the time the symptoms of tetanus appear in the horse the saturation of the tissues with tetanus toxins is quite general, and the amount of toxin contained in the body at that time is enormous.

The bacilli themselves never enter the blood, and, of course, cannot pass into the circulation, and after they have elaborated enough toxin to cause death the post-mortem appearances, as is well known, are about normal, with the exception of the suppurating wound at the point of inoculation and more or less congestion of the central nervous system.

It has been shown by experiments conducted by Behring and Kitasato that the trichloride of iodine restricts to a very great extent the vitality and virulence of the tetanus bacillus, and by introducing into susceptible animals small quantities of tetanus cultures that have been treated with this agent, and gradually increasing the strength of such cultures by using smaller quantities of the trichloride of iodine, a certain degree of immunity can in time be developed, so that at last very large quantities of pure culture can be introduced without producing tetanus. An animal treated in this way gradually develops in its blood a chemical substance that neutralizes the effect of the toxin of tetanus, and which is, therefore, known as an antitoxin.

The immunity that the animal possesses depends upon the antitoxin that is present in its blood. If another susceptible animal is inoculated with a fatal dose of tetanus toxin, and is treated immediately thereafter with an adequate amount of antitoxin derived from the serum of the immunized animal, the development of the disease will in this way be prevented, and it is upon this principle that the treatment of tetanus with antitoxin is based. Experiments conducted by Vaillard and Rouget have shown, that if the toxin is removed from the tetanus bacilli, they can then be introduced into an experimental animal without evil effects, because they are quickly taken up by phagocytes and destroyed; but when tetanus bacilli containing antitoxin are introduced they are not taken up by phagocytes, and quickly produce toxin, causing the development of tetanus. The antitoxin, injected immediately after the toxin-containing bacilli are introduced into the body, neutralizes their poison to such an extent that they can be destroyed by the phagocytes; but if the antitoxin is not present in the blood when the animal is inoculated with the germs of tetanus, or if it is not introduced into the circulation shortly thereafter, the tetanus bacilli produce so much toxin that it cannot be neutralized, and the development of tetanus cannot be prevented. That is to say, tetanus can be prevented with great certainty by the use of antitoxin; but when the symptoms of the disease have once appeared there is so much toxin in circulation that it cannot be neutralized by any amount of antitoxin that it is possible to introduce, so that the treatment of tetanus with antitoxin is not yet established on a profitable basis.

The prevention of the disease, however, by the use of antitoxin is in many instances practicable and a valuable resource. For example, it is known that tetanus is much more prevalent in some districts than in others, and that exposure is frequently followed by tetanus. It is also known that on some farms and in some stables tetanus is a common disease, and even slight injuries result in death from this cause. Under these conditions it may be serviceable to administer to the animal an immunizing dose of antitoxic serum, after which the contemplated operation may be performed without risk. Or if a valuable animal sustains a puncture of the foot or a punctured wound or a calk-injury, and particularly if the animal is kept in a stable where tetanus has previously appeared, it would be advisable as a general precautionary measure to protect it by the use of antitoxic serum.

My attention was recently called by Dr. Walters, of Wilkesbarre, to a mine in Dauphin County wherein there were almost one hundred mules, and of these twenty-three died of tetanus during a period of about two years. In January five or six died. I obtained some tetanus antitoxin, which was administered to fifty mules that occupied the stables in which the tetanus had previously appeared. Since that time no cases of tetanus have been reported.

Tetanus antitoxin has been used most extensively by Nocard in France, and Schutz in Germany, and they report that the mortality from tetanus has been considerably reduced by the use of this agent in districts where the disease prevails extensively and where antitoxin has been used before operations and after injuries as a precautionary measure.

The recent researches that have been made in relation to this disease, and the knowledge that we now have in reference to its toxin, explain the indifferent results that have attended the use of medicines. While it is true that certain therapeutic agents will, for a time, prevent the spasms that occur in tetanus, they cannot cure the disease, for they do not neutralize the poison, and as soon as the animal emerges from the effect of the drug the spasms are as bad as ever; but during the entire period the nervous system is irritated by the toxin it is gradually losing its vitality, and the animal is approaching death.

The only forms of treatment that are at all promising in the light of our present knowledge of this disease are: (1) The use of tetanus antitoxin; (2) the excision or sterilization of the local wound; (3) complete quietude and rest, thus giving an animal an opportunity to conserve its strength to the greatest possible degree, and make its conditions most favorable for overcoming the action of the toxin. It may be that other means of neutralizing the toxin will in time be discovered, or that it may become possible to produce the elimination of the toxin from the body; but as yet all efforts in this direction, including the use of purgatives, diuretics, and diaphoretics, have signally failed. Our greatest hope is in the development of the antitoxic treatment.

Chicago has a mounted brass band of thirty-five pieces.

OPEN-JOINT.[1]

By A. H. Baker, D.V.S.,
CHICAGO, ILL.

Open-joint is one of the most serious and one of the most common traumatic ills we meet with in everyday practice, and one that is skimmed over lightly or not noticed at all by authors on veterinary surgery, and, I feel free to say, one in which is employed the most old-fashioned and generally useless treatment of any. We notice veterinarians using the same remedy and general procedure to-day that our forefathers used, in many cases not even giving the same usually good treatment that ordinary simple traumatisms receive. Poultices and blisters seem to be the popular remedies of many of our best men and teachers in veterinary schools.

With a view of recalling to mind the serious nature of the trouble, I will briefly run over the pathogenesis of it. An open-joint is a wound where the skin, the binding and capsular ligaments, and the synovial membrane are ruptured, allowing escape of the synovia and ingress for germs of various kinds that cause inflammation of the tissues, especially synovitis and oftentimes arthritis. The case runs through four well-defined stages: First, a flow of pure synovia in limited quantity. Second, as the inflammation develops the flow of synovia increases, and, if confined so as to accumulate, it coagulates in the form of an amber-colored, odorless clot; the joint swells, becomes painful; fever develops, the pulse is hard and increased in frequency, the animal is restless and inclined to keep the affected limb in nearly constant motion if the trouble is below the elbow or stifle; he usually persistently stands, becomes tucked up, and emaciation is rapid; after a couple of days more or less pus is mixed with the discharge. Third, the articular cartilage becomes involved, suppurates, ulcerates, and becomes absorbed; the discharge in this stage is offensive and occasionally streaked with blood; the limb swells extensively, and numerous abscesses form around the affected joint, rupture and form sinuses; the swelling becomes indurated; he never bears weight upon the limb, usually ruins the other leg, and dies in the course of two to six weeks. If it runs a somewhat milder course, with less swelling, suppuration, and induration, it runs into the fourth stage, in which the articular ends of the bones become involved in a rarefying ostitis, with a liberal exudation of lymph, which coagulates, organizes, and anchylosis is the result, more or less ruining his usefulness, according to which joint is affected and the class of work he is adapted to. The leg is always permanently enlarged, with considerable ossification of the inflammatory deposits.

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[1] Read before the March meeting of the Chicago Veterinary Society.

In suggesting a rational plan for treatment I bear in mind that the immediate cause of all this trouble can be summed up in one word—*sepsis*, and that the secret of success in treating an open-joint lies also in one word—*antisepsis*.

Septic germs find a fertile field in such a wound, and the synovial membrane, being apparently very sensitive, yields quickly to the irritation produced by them. The germs may enter at the time of the accident, or afterward, and it is these that we have to fight from the start. Poultices are an abomination, no matter how well they may be cooked with a view to sterilize them, or how well the attempt may be made to sterilize them by the use of antiseptics, for germs will work their way in between the poultice and the skin, and often find a fertile soil in the poultice itself. Blisters are nearly as bad. They serve to increase the pain by producing extension of the inflammation to the more superficial parts without reducing it in the joint. They tend to close the external opening by the swelling they produce; this, however, does not lessen the activity of the destructive process going on inside, but rather tends, in my opinion, to promote it and to increase the liability to form abscesses and sinuses in the surrounding tissues. Treatment, to be rational, must be directed toward reducing the inflammation by removing the cause, viz., destroying the germs that have entered the wound, and allowing granulation to go on in a natural way.

The first thing to do is to remove the hair as closely as possible from a considerable surface, remove shreds of lacerated tissue, if any, wash the wound with soap and water, then irrigate it thoroughly by syringing with an antiseptic lotion. Do not introduce the nozzle of the syringe into the wound, but, holding it a little distant from it, shoot the lotion into it with a little force for ten or fifteen minutes; then do it up by covering it freely with an antiseptic powder—for instance, iodoform, powdered boric acid, and starch in equal parts—and apply a good-sized pad of absorbent cotton over it, and hold it in place with a bandage. Dress it night and morning. This is imperative on account of the necessity of removing the synovial clot that forms on the cotton. If the case does not do well with this treatment, it is because the wound is not aseptic, and in such a case there is the continuous motion spoken of induced by the pain. In such a case more heroic surgery is needed. The wound, probably, is too small; enlarge it with a probe-pointed bistoury half an inch each way upward and downward, making a V-shaped opening; irrigate it again, no matter if the lotion enters the joint. Use for this purpose bichloride of mercury, 1 to 2000, for ten minutes, then reduce it to 1 to 5000 to rinse out the stronger solution; then do it up as before, and put on an iron brace to stiffen the leg, to prevent motion in the affected joint. The necessity of this should be anticipated, and the proper shoe applied to the foot before too much soreness has developed. Immobility in an open-joint is a *sine qua non* to success. The brace is the only effectual means of accomplishing this. The old-fashioned splint is a failure. The brace does not interfere with the application of the dressings, nor does it chafe the leg, if properly padded.

The brace is made of half-inch square iron, with a hook on the bottom to hook into a hole in the bar of a foreshoe, being bent to fit the outline of the back of the leg, running up to the middle of the arm, with a piece of broad band-iron fastened to it at the top to clasp the arm. One or two leather straps are fastened to the brace between the band and the foot, to keep the leg in its natural position. The brace for a hindleg is hooked into the toe of the shoe, and is bent to follow the outline of the front of the leg up to about four inches above the hock, with similar band and straps as for the forelimb. All of the bearings between the brace and the leg should be well padded.

In cases of open-shoulder, hip-joint, or stifle-joint the swelling is apt to be excessive. The wounds usually require enlarging with a knife to afford ample opportunity for thorough irrigation. The wound is usually deep on account of the swelling. This condition enables us to insert an antiseptic plug—not to prevent the flow of the discharge, but to keep out germs—composed of solid extract of belladonna, tannic acid, and carbolic acid, one drachm each; wheat-flour, two ounces; water, q.s. to form a paste. Press a little of this well down into the wound, then foment the swelling with warm water persistently, and repeat three times a day.

Open navicular joint is a very common case in city practice, and one that very often results disastrously, either in death of the animal or permanent lameness. When a nail-prick is found to be an open-joint, the soaking and poultices that had been used up to that time should be discontinued, the hoof and frog freely pared away, and the wound freely exposed and enlarged to permit of irrigation. After doing this do it up in a 3 per cent. solution of carbolic acid, with oakum for a pack. Let it cover the sole, heels, and coronet. Keep this wet continually by pouring the lotion freely into the pack several times daily. Renew the pack night and morning to remove the oakum soiled with the synovia and pus. Instead of hot fomentations, whether there is swelling or not, ice-packs or ice-water may be applied and kept up persistently until healing has advanced to a point where there is no more danger of severe inflammation.

Open-joints treated in this way almost invariably make good recoveries, the inflammation subsides, the flow of synovia gradually stops, the wound granulates and heals by second intention without suppuration.

If some swelling and considerable lameness persist, especially in the foot, repeated cantharidean blistering and long rest will usually lead to resolution.

If the horse will lie down, I prefer to have him do so; but if he persistently stands, put him into slings during the more acute stage.

Open-joints that occur as a result of necrosis and sloughing beneath the skin in cases of contusions usually prove fatal on account of the extensive disorganization.

AZOTURIA.

By John R. Hart, V.M.D.,
PHILADELPHIA.

[A synopsis of a paper read in 1883 by John R. Hart, V.M.D., of Philadelphia, with such modifications as circumstances and lapse of time would seem to warrant.

That paper contained the expression of an opinion, much criticised at that time, that azoturia was purely a liver and kidney disease, and the careful investigations of the subsequent fourteen years have but confirmed the opinion that azoturia is primarily due to a diseased liver.]

Liver. Physiology teaches us that the function of the liver is to secrete and to excrete. Any disease that retards these processes, or any derangement of this organ, lessens secretion of bile, which is one of the most important factors in the animal economy. The

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[1] Read before the meeting of the Pennsylvania State Veterinary Medical Association, Philadelphia, March 2, 1897.

other function is to change the blood during its transit through the hepatic circulation, whereby it is fitted for its subsequent purposes in the animal. From autopsies I have made I am led to believe that more derangement to the system results from an inactive liver than we are aware of. Torpidity of this organ has a tendency at all times to cause indigestion. One of the chief functions of the liver is the secretion of bile for the purification of the blood by the ultimate excretion of effete matter, as you all know that bile is not discharged through an excretory duct or from a reservoir in the horse, but passes directly into the intestinal canal, where it mingles wth the chyme directly after it leaves the stomach. This shows the relation it has with the food with which it is mixed. We know it is alkaline in its reaction. Any alteration in its natural constituents has a deleterious effect on the general system.

Physiology teaches us that the liver arrests and renders harmless toxic substances which originate in the intestinal canal. If you have an inactive or diseased liver, this function is not performed and the toxins pass into the blood. The comparative toxicity of the portal and hepatic blood demonstrates that poisoning has no time to develop. The animal appears to succumb to an intestinal hyperæmia and consequent cerebral congestion in some cases. Professor Leonard Pearson, of the University of Pennsylvania, some six years ago called my attention to a gray gelding at that institution on which he had held an autopsy, which disclosed in the liver fatty degeneration, kidneys very much congested and large, lungs congested, and the entire alimentary canal in an intensely congested condition. The owner of this animal said that it had left the stable in apparently sound health three hours before its death.

I think we may therefore conclude that the liver is an organ of protection to the animal; that it arrests more or less toxic material in general, but not the whole, as a part passes out with the urine.

The liver is not the only organ which acts the part of a protector to the organism against poisons; we may consider as an auxiliary agent of protection rapidity of intestinal expulsion by the stools. Alterations in the intestinal contents result in the formation of hard fecal masses, which are harmless because absorption is no longer possible. We have a hurtful constipation, and from this the nervous system suffers—an example of reflex action.

Continued unusual pressure produces excessive activity of the nerves supplying the part; excitability is finally abolished, and paralysis of the nerve power occurs locally, as is seen in overdistention of the bladder. A constantly overloaded condition of the bowels may produce either of these local results on the nerve-filaments themselves. This effect travels backward to the motor ganglia in the lumbar cord, and defecation, being essentially a reflex act, when its directing centre is not sensitive to the controlling impulse of the brain, does not occur promptly and the constipation thus reacts upon the whole system. This produces a form of azoturia that is invariably fatal.

As for the biliary salts, they do not kill by direct intoxication alone; they dissolve and break up blood-globules and other cells, striated muscular fibres, and cells of the liver. They therefore cause anatomical lesions, and intoxication arises from the setting free of toxic substances which enter into the composition of the cellular elements. This intoxication develops but slowly. So long as there is functional activity of the kidneys, all is well; but if this activity ceases, then death may result from the other products of cellular destruction. It is said that if all the bile which the liver secretes passed directly into the blood, man would be poisoned by his own bile in eight hours. If all the urine that the kidneys secrete passed directly into the blood, man would be poisoned by his own urine in two days. We see the danger which results either from an impediment in the way of the elimination of bile or from its absorption. Fortunately more than one-half is eliminated in twenty-four hours by the digestive canal. What becomes then of the half of the bile which is not thrown out by the digestive canal? Does the liver destroy it? Does the tissue change it? These two hypotheses are possible, but are not demonstrated. What is demonstrated is that in the intestine a portion of the bile ceases to be absorbable. The coloring-matter and the biliary salts are metamorphosed, precipitated, or rendered insoluble; yet in certain morbid conditions bile may be absorbed in the liver itself at the margin of the hepatic cells. In these cases if the kidneys remain permeable they ward off intoxication; if they have ceased to be so, poisoning is the result.

The above facts lead to the conclusion that when from a faulty liver we can have, aside from liver and kidney, a third source of poison for the blood, as we do in azoturia (that is, putrefaction), not only that which arises from the imperfectly digested matter, but that which the presence of microörganisms in the intestinal tube incessantly maintains in the digestive canal, the conditions most favorable for the elaboration of poisons are realized. Therein are found nitrogenous substances already peptonized, and peptones are, as you know, excellent culture-media for microbes.

The conditions favorable for the maintenance of putrefaction are so numerous that we ask whether digestion can ever go on normally. Fortunately the stomach secretes, on the introduction of food, a juice—hydrochloric acid—which arrests fermentation.

Bile is regarded as capable of prolonging the arrest of fermentation, but it is capable of undergoing fermentation itself, or of putrefying. It can therefore only feebly oppose fermentation in the small intestine. At any rate, it can have no influence upon that which is actively carried on in the large intestine.

Thus we find the small intestine, on the one hand, and the large intestine particularly on the other, capable of passing products of putrefaction into the blood. But are the putrid substances toxic?

Gaspard in 1822 established the fact that putrid substances are toxic and that they are actually more so than substances arising from disassimilation. He injected into the veins of animals liquid from putrid blood of meat. He induced faintness, diarrhœa, hyperæmia of mucous membrane, then death. At the autopsy ecchymoses of the digestive canal were seen; also of cellular tissues and of muscles of heart, swelling of spleen and mesenteric glands, and congestion of lungs. All these conditions are found after death in azoturia.

We may have alterations in the liver, due to a congested condition, which, if continued or frequently repeated, would result in bilious contamination of the blood. Or perhaps from some previous disease we may have alterations in the liver that would have a tendency to prevent it from doing its proper work. Any inability of the liver or derangement of its functions would cause changes to take place in the alimentary canal, bile being in part reabsorbed into the blood, contamination following.

Now, what effect have the alterations mentioned, and what are the toxins? The organism contains poisons the origin of which we know—the destruction of cells, disassimilation of secretions, ingestion and putrefaction. The digestive canal contains poisons which come from ingesta, bile, and putrid material; its contents therefore should be toxic. Experimentation has demonstrated that they are toxic from the potash and ammonia, toxic from bile and putrid material. While you cannot demonstrate experimentally that the poison enters the blood, you can demonstrate that it leaves the blood. When bile ceases to flow into the intestines it passes into the blood. This problem cannot be solved. Any alteration in the liver caused by disease will prevent the excretion of effete material. Now if such is the case, where will this effete material go? Will nature allow it to so flow or be taken up by some channel whereby the blood will not become contaminated with it? It has been shown that it does not. The result is that the effete material collects in the blood. With what results? To act as powerful irritants in the animal circulation. This material first prevents the proper flow of the blood; second, causes a complete stasis; third, a dilatation of bloodvessels; fourth, a direct pressure upon the nerves; fifth, a complete loss of power from pressure on the nerves; sixth, decomposition.

In my paper on azoturia in 1883 I stated that azoturia was purely a liver and kidney disease. At the present date I feel more than convinced that azoturia is purely a liver and kidney disease. The question may be asked, Why should the kidney be a factor in this disease of the liver? In conjunction with the paralysis by dilatation of the renal arteries, caused by the effete material circulating in the blood.

Guitéras says any agent that causes an obstruction of the circulation, or nervous influence which may act by trophic derangement by causing circulatory disturbance, vasomotor action, the necrosed part may be absorbed, retained, or discharged. We have general excess of blood where there is a condition of plethora, a true hyperæmia; with this we have nervous influence. This may be due to paralysis of vaso-constrictors, whereby the outflow of blood is prevented.

Now, from a pathological standpoint there is really no disease of the blood, but rather of organs, and we study conditions of the blood and blood-making structures, mainly the bone-marrow, the lymph glands and spleen, the blood-destroying organs, of which the liver and spleen are important ones.

Lymph glands. Their functions are to form blood-corpuscles, to filter lymph—for this flows between the cells of the lymph-adenoid tissues. In this way injurious substances are prevented from entering the circulation at times.

Dr. Wood says hæmoglobin causes a dark cherry-brown color in blood. The enormous blood-pressure forces the capillary circulation through the tissues.

Kidney. Now, what part does the kidney take in this disease, as a preventive organ, and what part of the nerve-functions are involved, one with the other, to cause the disease of azoturia?

Pathologists usually divide the course of a disease into three stages or periods: First, that of increase; second, that of acme, in which the symptoms remain stationary; third, that of decline. But these stages are far from existing in all diseases or following one another in regular succession. In acute disease alone are they presented with distinctness and regularity. In azoturia which breaks out suddenly in its full force the first stage is wanting, and the record terminates abruptly in death without any period of decline.

It will be quite proper to attribute to it only one part of the phenomena which might supervene when the impermeability of the kidney is such that it can no longer eliminate the toxic substances produced by the organism in proportion to their formation. With a kidney acting well, things may not go further; but if the renal emunction is insufficient, we may see developed traces of uræmic intoxication through simple exaggeration of intestinal fermentation. While the kidney itself may not be really diseased, it will be sufficient, for the quantity of toxic material introduced into the blood should exceed the activity of the kidney and its ability to eliminate it.

The quantity of toxic matter eliminated by the kidney in twenty-four hours is, without doubt, in excess of what is necessary to kill the whole body.

Now, if the kidney is unable to do its work properly from some previous ill condition, or has been doing some extra work for the liver, the blood will quickly become contaminated, and the result will be azoturia, as if all the bile secreted in eight hours was introduced suddenly into the blood, we should see fatal nervous effects produced immediately; but as elimination is constantly being effected through the kidneys, and as the fibres of connective tissues are being incessantly colored, while the blood reabsorbs only gradually, nervous accidents are thus averted. The tissues serve to protect the organism against these poisons. Experiments have shown that this coloring-matter is ten times more poisonous than biliary matter. Salts become fixed.

When we consider the functions of the kidneys we are more able to understand the important work they are called upon to perform in azoturia. They eliminate all superfluous matter that may arise. Blood filled with effete material will stop the secretion.

It requires the kidney to be considerably diseased, for, owing to its permeability, it is sufficient alone to eliminate the poison formed by the organism in proportion to its production. Below this rate commences intoxication. But before this arises we see abnormal phenomena appear. First, albuminuria. Albuminuria is the accident of bad repute in diseases of the kidney.

The extreme cases belong chiefly to amyloid nephritis, because in such the liver, spleen, stomach, and intestines are diseased. All the organs whose function it is to transform the peptones of digestion into serum-albumin have undergone deterioration at the same time as the kidneys.

When such a large number of organs are diseased we can scarcely regard all the accidents which happen as due to renal impermeability. We cannot say that there is uræmia nor even kidney disease. There is a general disease of organs concerned in assimilation.

The inability of the kidney to do this extra amount of work is indirectly the cause of the paralysis, while the diseased liver, on the other hand, is the direct cause of the diseased kidney. The question may be asked, How is the liver the direct cause? From a pathological point, any derangement of the liver increases the labor of the kidneys.

The kidney becomes inactive from this source, and then refuses to perform its work. Functions are lost for the time being, with the result that the blood becomes contaminated with urea, as every aliment would become a poison if renal elimination was not the safeguard of the body.

(To be continued.)

PURE MILK.

By R. A. Pearson, B.S.,
ASSISTANT CHIEF, DAIRY DIVISION, UNITED STATES DEPARTMENT OF AGRICULTURE.

(Concluded from page 193.)

The chief sources of infection are dirt and water. Dirt finds entrance to the milk in many ways; perhaps most frequently it falls into the pail while the milk is being drawn. Every time the udder is jarred by the hand, or the hair on the thigh and side is disturbed by the arm or the motion necessary in milking, particles of dirt, epithelial cells, and hairs are loosened, and many of them fall within the pail, bringing with them myriads of germs of numerous forms. When animals remain in the stable all the time, or are confined to the ordinary barnyard, they become covered with loose particles of dirt, and, if they are not cleaned, it is not uncommon to find a large amount of dirt in the bottom of the milk-vessel after the milk has stood undisturbed a short time.

This source of infection may be easily overcome. Farmers often think that the horse must be well cleaned, but it makes little difference with the cow; this is a great mistake. Cows should be groomed daily, and before they are milked the udder and surrounding parts should be carefully cleaned and wiped with a damp cloth, so that the particles of dirt and bacteria that remain will adhere to the animal and not be so easily shaken off, as is the case when they are dry. It is also important for the milker to be clean. Hands should be carefully washed and overclothes used for no other purpose should be put on before milking is commenced. At the Experiment Station in Wisconsin the effect of cleanliness on the part of the cow and milker has been shown. It was found that under ordinary conditions the number of bacteria deposited per minute in an ordinary-sized milk-pail during milking was over 16,000, while this number was reduced to about 2500 when the precautions just described were taken, a reduction of 85 per cent. Many similar experiments prove the importance of having cow and milker both clean.

Improperly cleaned dairy utensils are another prominent source of milk-infection. Old, worn, battered pails and cans should be discarded, as they cannot be thoroughly cleaned, and those used for carrying milk should be used for no other purpose, nor should they be allowed to remain in the stable when not required there. Vessels are frequently washed by agitating water in one and pouring it into another, continuing this even after it becomes cool and unfit for use. They should be carefully cleaned in hot water, rinsed in clean water, and sterilized with live steam or boiling water. Russell has found that milk taken in sterile pails contained but 165 germs per c.c., while that in unsterilized pails taken under the same conditions contained over 4000 germs per c.c. The sterilization of milk-utensils should be universally practised; it takes away danger of infection by pathogenic and non-pathogenic bacteria that may remain after washing or have been introduced by the rinse-water.

Germ-laden air is responsible for many bacteria obtaining entrance to the milk. When hay or any other dry fodder is fed much dust arises from it, and the number of germs falling within a space the size of the opening of an ordinary milk-pail may be over 150,000 per minute. It is, therefore, important to use such feed-stuffs *after* milking, or to moisten them if they are to be fed just previous to or during milking. The air of cities is often teeming with micro-organisms, and it is liable to contain pathogenic bacteria. For this reason, if for no other, it is essential that dairies which are to produce pure milk should be located in the country.

The fore-milk is a source of infection not to be overlooked. A little milk usually remains in the teat, and this is easily reached by some of the bacteria from the outside of the udder; all the conditions are favorable to their growth, and they multiply with astonishing rapidity. Usually the germs in the teat represent few species, but the number of individuals is very great, and they may infect all that is drawn into the same vessel as the fore-milk. Shultz has found almost 100,000 germs per c.c. of fore-milk.

It was found that milk as ordinarily taken contained over 15,000 bacteria per c.c., while with the precaution above suggested there were less than 350 in the same volume, or a diminution of about 98 per cent. Thus it is seen that the number of germs entering milk can be largely controlled by observing cleanliness in every detail of the work.

The rapid cooling of milk is of equal importance. After it has been drawn it should be immediately cooled to 45° F., or lower, to check bacterial growth. If this is not done, it will soon contain as many organisms as it would under ordinary circumstances, and the extra care that has been exercised will be wasted. Each pailful should be cooled as it is emptied, and not allowed to remain warm even ten or fifteen minutes until a can is filled. In the best-conducted dairies special stress is placed on the cooling of the milk; in some cases it is at a temperature of 40° within fifteen minutes after it has been drawn from the cow. Spores require a higher temperature for germination than is necessary for the growth and multiplication of germs. So if milk is cooled immediately, it will be quickly brought to a temperature at which the spores falling into it will not germinate; but if cooling is slow, many spores will have ample time to germinate while the milk is still warm and rapidly reproduce at the lower temperature at which they would not have been affected.

Non-pathogenic germs have been referred to chiefly; but if the germs of a contagious disease are in the neighborhood of a dairy, they may be conveyed to the milk exactly in the same way as the harmless ones. The cow herself may be a source of contamination. If she is diseased, germs may be found in the milk in the udder. Germs of tuberculosis are transmitted from the animal in this way, also those of diphtheria, scarlet fever, and foot- and mouth-disease. Guillebeau conducted a series of experiments in which he examined the milk of seventy-six cows suffering with inflammation of the udder, and in each case he found the milk to contain bacteria which produced, by inoculation, similar trouble in healthy animals. The bacillus of tuberculosis is probably the pathogenic organism now most to be feared in milk; this insidious disease has attracted much attention from physicians, veterinarians, and lawmakers. The number of cattle infected with it is variously estimated at from 2 to 10 per cent. Bang and Ernst have shown that cows having general tuberculosis, but no disease of the udder, may produce milk infected with the bacillus tuberculosis, and other authorities concur with them. All agree that it is not safe to use the milk from cows whose udders are affected by tubercular disease. The physical examination for tuberculosis is not reliable, and it is difficult to detect the presence of these bacteria by microscopic examination, and inoculation experiments are slow. Many large herds may be found that have been examined with the aid of the tuberculin-test, which is now considered the best proof of the existence or non-existence of tuberculosis. The bacilli of tuberculosis are not as easily killed as those of most other diseases. They are not affected in the alimentary canal, and a temperature of 150° for about an hour or 160° for fifteen minutes seems to be necessary to kill them.

Other sources from which pathogenic bacteria are derived are sick persons who attend the animals or have care of the milk. Typhoid fever is, perhaps, the most prominent of these diseases, and quite a number of outbreaks supposed to have been caused by infected milk are recorded. Busey and Koben report the circumstances of an outbreak at Stamford, Conn. In 1893 there was an outbreak of thirty cases of scarlatina in Glasgow, and it is described by Busey and Koben as follows: "This epidemic was traced to the milk from two dairy farms. At one of these a boy simply suffered from sore-throat which induced scarlet fever in others. At the other farm some of the dairy employés developed scarlet fever and had kept at work for one or two days after illness." Twenty-eight cases of diphtheria occurring at Hightstown, N. J., are referred to as follows: "These cases occurred within one week and were all traced to a milk-supply derived from a farm where a German boy assisted in milking while he had diphtheria."

Although it is true that the common bacteria of milk are not pathogenic, some of them by their growth may produce poisonous toxins, and when they are present in large numbers serious results upon the consumer may be produced by these products. Cholera infantum and other intestinal troubles are often attributed to this cause.

With all these facts before us, we would say that the following are the chief things to be observed in establishing a dairy plant:

Any animal suffering from any disease, or not in a normal condition, should be excluded from the herd.

The pastures should be free as possible from foul, decaying animal or vegetable matter. The cows should not have access to swampy ground or any place where they may become unnecessarily befouled.

The stables should be constructed with a view to the comfort and health of the stock and the convenience of the employés. They should be on elevated, well-drained ground, and lighted and ventilated in the most approved manner. The waste-products should be frequently removed, and the feed should be kept apart from the stock-room. No waste-products should be allowed to accumulate in the vicinity of the building.

The water-supply should be abundant and pure, and obtained from deep wells when possible. Springs, brooks, and shallow wells may easily be contaminated, and water from them should be used with caution.

No unwholesome foods should be used, nor any that has begun to putrefy or spoil. Any feeding materials that might impart an objectionable taste or flavor to the milk should be avoided.

The dairy-house should be located and constructed with the same care as the stable. The drainage needs special attention.

The animals should be sheltered at all times when the weather might be prejudicial to their health. They should be cleaned every day, and made comfortable at all times. Kind treatment is imperative, and the milk from any animal in an excited condition should not be used.

Milking should take place in a clean, well-ventilated building, and the milk should be drawn in a cleanly manner by tidy attendants. The vessels should be clean and sterilized. The milk should be strained through fine-wire mesh and cloth and cooled, and held in a place free from contamination at a temperature not exceeding 50° F. It should be served in glass jars which have been thoroughly cleaned and sterilized.

It has been suggested that the place where the improvement of the milk-supply should begin is on the farm, and improvement should be made at each step from the farm to the consumer. Intentional fraud and negligence are less to be feared than ignorance, hence education is one of the chief remedies to be sought. A good start toward educating dairymen has already been made by the establishment of dairy-schools, one being located in every State where dairying is a prominent industry. Courses are given at these schools in the winter and continued from six to twelve weeks in all, all the time being devoted to the study of dairying and closely allied subjects, such as the selection, care, and management of the dairy herd, the composition of milk and its products, the manufacture of butter and cheese, dairy chemistry and dairy bacteriology. Young men who have taken these courses are now connected with firms supplying milk to cities, and this special training has proved to be of much value to them and to their employers.

Dairymen and others will gradually learn to use greater intelligence in the production and handling of milk. They will learn to cover their field more perfectly than most of them do at present, and the veterinarian will be called upon more frequently for assistance.

The consideration of pure milk and aid in obtaining it seems to fall naturally to veterinarians. They are concerned with animals and their products. On account of their profession they understand the functions by which milk is produced and know something of its nature; being interested in the general health of a community, they should assist in having pure foods. And from a business standpoint it is to their interest to have the milk-consumption as large as possible.

As suggested above, one of the chief agents which has acted to increase milk-consumption has been the increased confidence of consumers. What can better serve this end than for them to know that the dairy, the stock, the surroundings, and the methods of conducting the work are carefully and frequently examined by a competent veterinarian who has made milk a special study? A veterinarian is already qualified for this work, though it may be advisable for him to brush up a little on the question of bacteriology, with special reference to the dairy.

Special attention should be given to prevent the entrance of pathogenic germs to the milk, and frequent examinations of the animals, employés, and surroundings of the dairy should be made. An examination of the herd in the field is not sufficient—every individual cow should be examined; the health of the employés and their families should be ascertained, and other things requiring attention, and feed, water-supply, the conditions of the stable and its ventilation, the milk-room, milk utensils, and methods of handling milk.

A good start toward supplying our cities with sanitary milk has been made. In almost all large towns it is possible to obtain milk that is produced on scientific principles. But places that can be thoroughly relied upon are yet few. They have many obstacles to overcome; one of them is the ignorance of many persons as to the value of pure milk. Some form of dairy inspection whereby the public may have full knowledge of the conditions under which the milk it consumes is produced is recommended. Various methods are followed in European countries and in the States. It is believed that one of the best systems has been inaugurated in New Jersey, and the milk from the dairy in question is termed "certified," as a body of experts certify that it is pure. A number of physicians interested in improving the milk-supply of their city have drawn up a contract with a dairyman which provides for the proper conduct of every part of the business; it specifically states the points upon which special importance is placed relating in detail to the duties of the dairyman.

The following section from the proposed contract is the one relating to the surroundings: "It is further understood and agreed that the immediate surroundings of the building shall be kept in a condition of cleanliness and in order. There shall not be allowed to accumulate in the vicinity any loose dirt, rubbish, or decayed vegetable or animal matter or animal waste, nor shall there be within three hundred yards of any building any constantly wet or marshy ground or stagnant pools of water; nor shall there be kept within three hundred yards of any building used for dairy purposes any fowls, hogs, horses, or other live-stock."

The physicians of the commission serve without compensation; they employ a veterinarian, a bacteriologist, and a chemist to examine the dairy and milk at certain intervals, and the reports of these experts are printed, all expenses being paid by the dairyman. As samples of milk for examination are liable to be taken from the wagon at any time, the reputation of the dairyman is constantly at stake. Milk produced under these conditions and placed on the market with the recommendation which it carries commands an extra price, which is willingly paid by those who appreciate its value, and is necessary on account of the increased cost of production.

Whether or not the plan could be successfully followed in other cities is uncertain. In the place referred to there had been an outbreak of typhoid fever which was traced to the milk-supply, and physicians and all citizens were alike aroused to the importance of radical reforms. In many cases a modification of the plan might be adopted; the Board of Health, or a committee appointed by them, might take the place of the medical board, and milkmen desirous of receiving the indorsement of this body should conform to their regulations and pay all expenses of the experts, who would make inspections and reports as often as requested by the board. Such a system could be conducted without expense to the community, and, being voluntary on the part of the dairyman, those who go into it should receive full benefit of it, such as privilege to make use of the experts' reports. It would be necessary to be very strict in regard to the conditions imposed and failure to comply with them.

There are about 17,000,000 cows in this country. It is estimated that 5,000,000 of them, whose annual product is valued at $150,000,000, produce milk for direct consumption. The task of improving this tremendous product is very great, and as there seems to be no one better qualified to assist the dairyman in the work than the veterinarian, it is most appropriate for the subject to come up for discussion in your meeting. I earnestly hope that greater interest may be awakened and some good accomplished by to-night's discussion.

THE EXAMINATION OF HORSES FOR SOUNDNESS.[1]

By H. D. Hanson, D.V.S.,
NEW YORK CITY.

THE subject of the examination for soundness is not a new one to you, but, as it is very interesting as well as important, I have selected it in order to try to excite discussion and bring out some of the important points that I have only touched upon or have omitted. My paper is short, being only a rough outline of the subject, as time will not permit a lengthy discourse.

In my opinion, the subject of the examination for soundness ought to be considered by veterinarians as follows: First, theoretical soundness; second, practical soundness.

Theoretical soundness rarely, if ever, exists, which should be remembered in making our examinations. This being the case, we, as veterinarians, have to be contented, and are compelled to make use of the term "practical soundness," which should be defined to be that condition existing which is the nearest approach to a perfectly sound horse.

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[1] Read before the Veterinary Medical Association of New York County, March 3, 1897.

Before proceeding any further, it is well to understand the meaning of "soundness." In defining a sound horse it becomes necessary to combine in a few words that which is difficult or almost impossible, as a complete definition and explanation would consume many pages.

Suffice it to say that a sound horse is one that is free from all disease and has nothing about him that interferes or is likely to interfere with his usefulness, or depreciate his value as a sound horse.

Taking the above definitions and the conditions really existing in practice, what do we find, and how are we to proceed?

In the first place, we find that theoretical soundness rarely, if ever, exists; second, that practical soundness is what we have to deal with; third, that a horse must be free from all disease that renders him unable to do his kind of work as a sound horse should; fourth, that certain conditions may be present which, in a longer or shorter time, are likely to render him unfit to do the work of a sound horse; fifth, that nothing must exist that tends to depreciate the value of the animal as compared to a sound horse; sixth, that we, as veterinarians, ought to examine carefully and conscientiously, taking into consideration the class of horse (whether a smooth-limbed, well-bred animal, or whether a common-bred, rough, and big-boned animal), as well as the kind of work the horse will have to do; seventh, that we, as veterinarians, have our reputation at stake; eighth, that we must do our duty to the buyer who employs us; ninth, that we should not be prejudiced against the seller; tenth, that in acting fairly for ourselves we will do our duty to all concerned.

How are we to proceed to examine the animal? We must bear in mind that a horse may be temporarily unsound and permanently unsound.

Temporary unsoundness may include certain diseases, of which, after the animal has recovered, little or no trace remains; it also includes certain forms of lameness, as interfering, slight sprains, etc., which subside in a short while. In our examinations we should look for disease, malformations, etc., and not for soundness.

The horse to be examined should be seen, first, at rest, in and out of the stall; second, in motion, both when warmed up and when cooled off (that is, examined in motion while hot and also when cold).

While at rest in the stall we may ascertain how the animal feeds —if he cribs, sucks wind, weaves, his position of standing, etc.;

when backing out of the stall, the movements, whether there is dragging of the feet, or other peculiar actions.

On the floor, have the animal naked (nothing on but a halter). Now take a general glance at the animal, noting the position of the extremities, the color, size, and general outline. Then proceed to examine part by part, commencing at the head and not forgetting to compare one side with the other as you go along.

In examining the head note the shape, the conditions of the bones of the face, the shape and condition of the eyes, the pupils, the ears, the mucous membranes of the nasal cavity (looking at the color, for ulceration, growths, etc.); then examine the contents of the mouth, the age, the shape, size, and wearing surfaces of the teeth, and examine the bars for fractures; next pass to the intermaxillary space, feeling the pulse, the condition of the lower jaw, whether thickened or thinned; the glands in this region, then the poll, the throat, the condition of the glands, not forgetting to cause the animal to cough and remembering the kind of cough; passing along the neck, the condition of the mane, the jugular groove, the trachea; the shoulders for marks of setons, wasting of muscles; the elbows (for capped elbow); the knee for fractures, inflammation, etc.; the shin-bones for splints; the tendons (for their condition); the fetlock for fractures, swellings, scars of neurotomy, etc.; then look for side-bones, ring-bones, etc.; now the general outline of the feet, as regards size, shape, etc., and in particular for toe-cracks, quarter-cracks, results of laminitis, navicular disease, etc.

Next the body comes under our observation, remembering to examine both sides; first the withers, looking for marks of setons, swellings, etc.: then the condition of the ribs; auscultate the heart and lungs; then pandiculate, looking at the abdomen for hernia, etc.; the flank, noting the respirations, whether quickened, slow, irregular, and the like.

Next place yourself behind the animal, examining the hips for fractures, swellings, etc.; then the hip-joints (remembering to compare one side with the other); now examine the tail to see if false; look about the anus for tumors; the inguinal region for hernia, tumors, etc.; the stifles (for swellings, dislocations); the hocks (for spavins, thoroughpins, curbs); then pass downward, noting the condition of the parts as in the anterior extremities. While here do not forget to take the temperature.

Now have the animal trotted by the halter in as straight a line as possible in a slow, easy trot, allowing it about one foot of rope, so as not to interfere with the action; the animal should be trotted from you, at which time you note the movements of the posterior extremities, and when trotted toward you the movements of the anterior extremities.

It is also well to have the animal turned both ways, so as to see if any signs of stringhalt exist.

When the animal is warmed up lameness may not be shown, while if cooled off it manifests itself, and *vice versa.* Next have the animal galloped to test his wind; see if the breathing is fast, irregular, or noisy Do not forget to examine the eyes with the ophthalmoscope.

I have given you a rapid sketch of the examination, but there still remains another very important part, which is the writing of a certificate.

What ought a certificate contain? It ought to contain the age, sex, height, condition of the mane and tail, and any special peculiarities or marks that may exist, the latter identifying one horse of the same color from another. If an animal be unsound, the cause of lameness, etc., may be mentioned in the certificate.

The following is the usual form used and adopted by Prof. Liautard:

This is to certify that I have examined this day, at the request of Mr.   , a chestnut gelding, six years old, fifteen and a half hands high, clipped mane, full tail, white star on forehead, low white stocking on near foreleg, high white stocking on off hind, and find said animal to be lame on the near hindleg from a spavin, and therefore unsound, or have failed to find any unsoundness.

The foreign demand for American-bred horses continues to enlarge, and almost every great selling centre of our country has representatives of foreign countries buying for export. The enhancing values of good horses may in a measure limit the sale in this direction.

Two notable features of the recent carriage exhibition at the Philadelphia Bourse was the absence of any horseless vehicles and a specially designed carriage for Veterinarian Charles Williams, with an electric headlight for the top, self-oiling axles, and a medicine-drawer, with compartments, which slides out of sight under the seat. It follows somewhat in design the Jenny Lind style.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS,
PRINCETON, N. J.

DIAGNOSTIC WORTH OF MALLEIN AND TUBERCULIN. Prof. Semmer gives the result of the numerous tests of mallein which were made under his direction during the year 1893–'94. In all 952 horses were subjected to the test, and in 561 of these a rise in temperature of 2° to 3.5° C. manifested itself. All of the 391 cases which did not react remained well, and in the few cases where post-mortems were held no symptoms of glanders (strangles) could be detected. In the 157 cases in which a rise of temperature took place post-mortems were also held on two animals without result; in all the others, not a single one of which showed external symptoms of the disease, the specific lesions were found; they were not, however, very characteristic: swelling of some of the lymph-glands internally with indurations, little ulcers, thickening of the mucous membrane of the nose, etc. In almost all cases fresh, soft, gray-colored granulations were found in the lungs, which sometimes were in a condition of cheesy degeneration. It often costs much trouble and care to trace out the pathological changes. These characteristic symptoms and the frequency of their occurrence, especially in southern Russia, led Semmer to the conclusion that this form of the disease was a mild strangles. The animals frequently recovered, and the bacteriological investigations gave, for the most part, only negative results. Semmer regards mallein as the surest means of diagnosis in strangles, rendering it possible to detect the disease in its mildest and most latent form. He considers tuberculin also as a valuable diagnostic means, and recommends its general use.—*Veeartsenij. Bladen*, Deel ix. Heft 4.

ESTABLISHMENT OF A VETERINARY INSTITUTION IN PRAGUE. At the session of the Bohemian Landtag of January 17th the following resolution of Representative Dworals, concerning the establishment of a veterinary institute, came up for first reading: That the Provincial government be authorized to enter into negotiations with the Imperial government, in order that a Bohemian veterinary institute may be founded in Prague, to fill the long-felt want in the kingdom of Bohemia of veterinary surgeons thoroughly trained in all the practical departments of the science. In speaking of the measure Dr. Dworals dwelt upon the necessity of prolonging the course to four years. The final aim of veterinary medicine is not merely to protect the live-stock which the nation possesses, but also to protect humanity from the baneful influence of epidemics among the domestic animals. For this, not empiricism, but the most exact science is necessary.—*Thierärztliches Centralblatt*, February 15, 1896.

DEMAND FOR THE REORGANIZATION OF VETERINARY STUDIES IN LOWER AUSTRIA. At the session of the Lower Austrian Landtag of January 21, 1896, a resolution was adopted urging the government to begin at once the reorganization of veterinary instruction, by means of which special regard may be paid to the training of veterinarians for the treatment of the diseases of domestic animals, especially cattle and swine. The representative of the government replied that a scheme for such reorganization had already been prepared and would be gradually carried out. He admitted that the veterinary institutes had heretofore paid almost exclusive attention to horses, but during the last few years cattle and swine diseases had been receiving more and more attention.—*Thierärztliches Centralblatt*, February 15, 1896.

SOCIETY NEWS. After the business session of the Lower Austrian Veterinary Society in Vienna, January 23d, the members accepted the invitation of Prof. Josef Bayer to visit the new clinic of the Veterinary Institute, where the following interesting cases had been prepared for demonstration: 1. Operation on a horse with radiating cancer, which had been under treatment for six months. 2. A plastic operation on the root of the front foot of a horse. 3. Cataract caused by artificial conditions, total on the left eye and nail-shaped on the right. 4. Congenital cataract on both eyes. 5. Huge melanotic tumor on the right cheek of a gray horse. 6. Breaking of the muscles on the under part of the right thigh. The demonstrations were received with great applause.—*Thierärztliches Centralblatt*, February 15, 1896.

URTICARIA OF THE HOG. Having made a study of this malady, M. Guittard thus gives the symptoms useful in the differential diagnosis of urticaria, rouget, pneumo-enteritis, and anthrax in the hog:

Urticaria: The cutaneous spots of a brownish color, not confluent, well-defined, situated upon the back, the neck, the lateral parts of the body, and the rump. A moderately pronounced fever; anorexia; no diarrhœa. Termination of disease usually satisfactory. Attacks young animals especially, and is not very fatal.

Rouget: Cutaneous spots of a mottled, violet color, poorly defined and widely extended, on the ears, the neck, beneath the belly, on the flanks, and extending often over one side of the body. A very pronounced fever; evolution very rapid. The diarrhœa is serous and sometimes bloody. Respiration very much accelerated. Complete anorexia. Termination almost always fatal. It attacks only animals of adult age.

Pneumo-enteritis: Attack and development gradual; prostration pronounced; flatulency; constipation at the end, then a fetid diarrhœal discharge mingled with blood. Cough, throwing up, with difficulty of respiration. Hemorrhagic and œdematous spots on the ears, the thighs, and beneath the belly. Attacks animals of all ages, and is very fatal.

Anthrax: Diffuse congestion under the throat; œdematous, mottled with violet, and increasing rapidly. Œdema on the surface; deglutition difficult; general weakness; diarrhœa developing very rapidly. Asphyxia threatening. Death almost certain. Occurs very rarely.—*Annales de Méd. Vét.*, March, 1896.

REPORTS OF CASES.

LIPOMA CAUSING DEATH.[1]

By J. F. Roub, D.V.S.,
Monroe, Wis.

The patient was a dark-brown gelding, sixteen hands high, and nineteen years of age, weighing 1200 pounds, and used for a carriage-horse; never known to refuse his food and never had a sick day previous to the time I was called to see him. Upon examination I found the pulse almost imperceptible; temperature 103° F.; perspiration bedewed the cutaneous surface; visible mucous membranes somewhat injected; peristalsis normal; and the feces were normal in appearance. The horse was suffering excruciating pain.

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[1] Read before the meeting of the Wisconsin Society of Veterinary Graduates, Madison, February 5, 1897.

The pain was continuous and presented the characteristic symptoms of enteritis, and I informed the owner that his horse would probably die. It being only a short distance from my hospital, I had the animal taken there. This was at 8 A.M. I began treatment by giving opiates and anodynes in large doses, but all to no avail. The horse continued to roll and thresh about until he was nearly exhausted. At 1.30 P.M. I gave morphine sulph., gr. v., hypodermatically. At this time I informed the owner that I was mistaken in my diagnosis, as it would be impossible for the horse to have enteritis and peristalsis continued for five hours and a half. I then made a rectal examination, but discovered nothing that would lead to a true diagnosis. Being at a loss as to the cause, I waited for further developments. At 2 P.M. the horse grew quieter and seemed almost free from pain. At 3 P.M. he rolled a few times, and then lay in a recumbent position, partly comatose, for about four hours. At 8 P.M. pulse imperceptible; a cold sweat bedewed the body; extremities cold; haggard expression of the countenance; tremor of pectoral muscles; staggering gait; temperature 98° F.; intestines paralyzed. At this point I was sure I had a case of enteritis, but did not inform the owner. There was not much change in the symptoms until 8 A.M., when the patient grew much worse and died at 9 A.M.

The animal was taken out two and one-half miles, and the autopsy revealed a lipomatous tumor resembling a large apple, measuring four and one-half inches in diameter; the pedicle was three-eighths of an inch in diameter, being attached to the posterior aorta three inches posterior to the lesser mesenteric artery, causing pressure on the aorta sufficient to diminsh the calibre of the vessel three-fourths. This caused infiltration, and there was a black, gelatinous mass, varying from one-half to one inch in thickness and covering a surface of twelve to fifteen inches, also extending down the lesser mesentery about eight inches. The intestinal tract and all the other internal organs were in a healthy condition.

HYSTERIA—DOG.

By H. W. Smith, V.S.,
MISSISSIPPI.

I was called to see a dog said to be mad. It was a fox-terrier, and said to be of high pedigree. It was noticed at play chasing birds, etc. After a time it seemed to be taken with a fit of barking. The dog was caught and put in a stable. A druggist and several others were called, who pronounced the dog mad. On my arrival I noticed that the dog did not appear to be in any way vicious, but was acting in a manner that any well-pleased dog might be expected to do—running around the stable, jumping up the wall, barking and wagging its tail all the time. I was told that he had acted in that fashion for three hours, during which time he had not stopped barking once.

I stated that in my opinion the dog was simply overexcited, not mad—in fact, that it had hysteria, and prescribed chloral hydrate, grs. x. The effect was almost immediate calmness. I left a dose of ten grains, to be given in half an hour.

EDITORIAL.

GO SLOW, MR. SECRETARY.

SECRETARY WILSON, in listening to the spoilsmen of his party in their wail for public place, should occasionally step outside the atmosphere of Washington and learn the feelings of those who have welcomed the establishment of the merit-system in the Department of Agriculture as the wisest and most advanced movement ever inaugurated in that department of our government. He should know that the veterinary profession have spoken through their associations and organizations in behalf of the value of the merit-system of appointment. He only need ask of those who have entered this service by this method how much they appreciate its value and worth, and how many of them have only relinquished private practice to enter the Government service because of the feeling of security that the merit-system promised to those appointed under its rules. He only need seek for an expression of opinion from one and all of the veterinary colleges of North America, which have the true education of veterinarians at heart, to learn of the appreciation of the change inaugurated by Secretary Morton, and which, for the first time, gave impetus to a movement that found in the colleges an additional interest in governmental scientific work, and thus increased the special training required to more properly fit men for such work. He need only ask those whose positions will afford an unbiased expression of opinion as to the value of the work done to-day; the efficiency with which it is performed, and the character of the men in this branch of the public service as compared with the days of the "spoils system" in that department. Step into any former working centre of the department under the old system, and hear the stories of the good times when "party pull" was the entré and chain of security to place, and then compare it with one of these centres of work of to-day, where earnest, efficient attention to work and true scientific interest and zeal are displayed in the effort to discharge a sworn duty in the interest of the public service. You need not hide behind one requisition, Mr. Secretary, that brought you a youth for some service in which you preferred age and experience. Nor must this be a barrier for entrance to the public service, for the schools of to-day are equipping their scholars for these positions much better than the experience alone of the past twenty years has taught.

The service in this department was never better performed than during the past three years; the value of the work never so commensurate with the cost of the same. The extension of the work in every wise and profitable direction will find no opponents among those who have best studied its importance; but every step upon your part to return this department to the prey of the hungry horde of spoilsmen who follow in the wake of party success, and whose chief aim is to feed at the public crib, will bring only such results as will rob your administration of its high character, lower the standard of the work of your department, and lessen the interest of every true supporter of this work—collegiate, association, and individual. We sincerely trust that better judgment will prevail; and we repeat, "Go slow in this direction, Mr. Secretary."

NOT ALWAYS A WISE PROCEDURE.

THE rapidly changing conditions of the times, calling to the aid of cities, towns, and boroughs, the assistance and aid of milk- and meat-inspectors, associated with the progressive movements of health and sanitary boards, have found, in many instances, that this field of work had not been properly cultivated, and a lack of education of the public has not created a discerning recognition of those best equipped to fill such important positions. By training, education, and association there is no one so well prepared to discharge these duties as the educated veterinarian. No layman, no butcher, no cattle-breeder or owner can, under any circumstances, discharge properly the duties of such positions; neither is the mere graduate of human medicine, without long experience and a knowledge of the domesticated animals, gained by observation and training, so well equipped to fill such posts. But it is of the layman we wish to speak more especially, and to say to our colleagues, when seeking these positions, that they must not forget that their services are much more valuable than those of a layman. It is trained skill of a high order they are offering, and, in the race for place or in the zeal to dislodge an unqualified person from such places, the veterinarian must not forget the greater value of his services and that a more fitting compensation should follow. To offer scientific, technical skill at little cost, or the throwing out of bargain-counter inducements is not always a wise procedure, and proves often a two-edged sword by first affording an inadequate compensation for work which should be properly and conscientiously performed; and secondly, fixes a low rate of compensation for similar services in other cities and towns, thus injuring all who may be desirous of elevating the profession.

THE Wyoming Valley Veterinary Medical Association passed strong resolutions and charged their officers with the duty of protesting against the proposed reopening of the Act of 1889, governing the registration of non-graduates in Pennsylvania. This association, in conjunction with members of the State Veterinary Examining Board, will press to an ultimate decision several violations of the laws governing the practice of veterinary science in Lackawanna County.

THE death of so many cattle and sheep on the Western ranges from the severe cold of the past winter has called forth a stinging rebuke from Prof. Thomas Shaw, of the Minnesota Agricultural College, to the men whose inhumanity imperilled the lives, not to speak of the suffering, of these animals, by placing them in such dangers, without making provision for either food or shelter. The humane societies of our land are strongly called upon to take action concerning this inhuman exposure of animals to such uncalled-for danger and suffering.

THE several proposed legislative acts of interest to the veterinarians of Pennsylvania are making progress. The bill to reopen registrations has not yet been reported from the committee to which it was referred. The bill to prevent the introduction of cattle for breeding or dairy purposes, except with certificate of freedom from tuberculosis or submission to the tuberculin-test, is well advanced on the calendar, but needs the continued advocacy and support of all those interested in these branches of animal industry. The bill to appropriate fifty thousand dollars for the purposes of investigation of the infectious and contagious diseases of live-stock, so as to arrive at more definite plans of dealing with them, is in the hands of the Appropriation Committee. This bill has won for itself the earnest support of the press, the farmers and dairymen, the veterinary and medical profession, as well as all boards of health and sanitary bodies.

GOVERNOR TANNER, of Illinois, shows little indication of any high conception of the needs of the times, and, in his recognition of a non-graduate for State Veterinarian, gives small encouragement to the movement demanding higher veterinary education in his State by the establishment of a Veterinary Department at the State University.

THE political shake-up in the Kansas Agricultural College, involving the retirement of some fifteen of the trustees and faculty, includes among the number N. S. Mayo, Professor of Physiology and Veterinary Science. Such are the dangers of State Universities which are semi-political in character, and where changes of administration in State government are often followed by changes in the State educational institutions, from which it will take years to recover. Kansas seems to be a cyclonic State in more ways than one.

VERY important plans and experimental trials for better information as to the methods of propagation and spread of tuberculosis are being planned by the State Veterinary Sanitary Board of Pennsylvania. These tests, bearing upon the practical and monetary measures of control, will be of the utmost value in dealing with this scourge, limiting its extension and determining the barriers necessary to control its ravages.

THE Bay State Legislature at its last session voted the sum of $250,000 for the work of the Cattle Commission in stamping out tuberculosis and other infectious and contagious diseases of live-stock within its borders. The changes in the constitution of the

Commission brought to its control and direction two members of our profession whose views, privately and publicly, were antagonistic to those members of our calling who had matured plans for dealing with the scourge of tuberculosis. The whole country waits with impatience to learn of the plans of those now in control; they appreciate the value of the great power in the Commission's hands; they are fearful of the loss of this power if some definite plan and work are not consummated; they realize better, perhaps, the result in other States where smaller sums of money were appropriated and used up in work without method or plan, and they are more than anxious that this work shall not be wiped out or placed in the hands of laymen because our profession is drifting about without plans or distinct purposes in the veterinary sanitary field of work. Much is known about human and bovine tuberculosis, but there is a great deal more to learn before economical plans for its control can be adopted, and these can only be determined by distinct and well-directed experimental work in now well-indicated directions. The country waits and the profession is dependent, in a measure, upon the lead in Massachusetts. The dangers are far-reaching, the burdens are heavy upon those who are carrying them, and we do not want to hear the criticism that such an intelligent body are, Micawber-like, waiting for "something to turn up." Let us hear of your turning up something; let us know of your plans, that others may join you in the common end of it all—relief to all concerned.

NECROLOGY.

LUCIAN T. BELL, M.D., V.S., died on Friday morning, April 16th, the result of failing health, which had been making inroads on his physical condition for the past year.

Dr. Bell was born at Staunton, Va., May 18, 1850, and received his early education in the country academical schools; he graduated from the old New York College of Veterinary Surgeons in 1871, the class of that year consisting of but four students, only two of whom were successful in receiving a diploma. After the establishment of the American Veterinary College he returned, and with some others received the degree of that school in 1876, and in 1880 finished a course in human medicine and received the diploma of the Long Island Medical College. He served under General Patrick in the first crusade against pleuro-pneumonia in 1876, as chief inspector for Long Island. When the Bureau of Animal Industry inaugurated the movement to suppress pleuro-pneumonia he was again summoned to aid in this work, and served until the Harrison administration. From 1885 to 1894 he was veterinarian to the Brooklyn Board of Health. In 1875 he became a member of the United States Veterinary Medical Association, but relinquished his membership some years later, owing to a very large practice and the care of a model veterinary sanitarium at 358 South Second Street, Brooklyn, E. D. Dr. Bell was a man of spotless integrity, an appreciated practitioner by a very large clientage, and one of the most successful in the city of Brooklyn. A wife and four children are left to mourn his loss, which will be mingled with the sympathy and sorrow of everyone who was fortunate to have enjoyed his friendship and acquaintance.

It is very encouraging to the efforts made by the editorial staff of the JOURNAL to receive the following in a letter sent to the editorial office, and we assure the writer of our sincere appreciation: "The March number of the JOURNAL came promptly to hand, and is replete with articles interesting to all veterinarians. The industry, energy, and untiring perseverance employed in the production of this JOURNAL are little appreciated, I fear, by the casual reader; but everyone who has noted the growth of this and other veterinary periodicals ought to take in it a personal pride and use his best endeavors to increase its subscription-list and its scope of usefulness. I am appalled with amazement when I think of the amount of work given by somebody to furnish me with such a valuable periodical. May the subscriptions justify the outlay of energy."

CORRESPONDENCE.

TO THE BOSS HORSESHOERS' ASSOCIATION OF CHICAGO, ILLINOIS.

GENTLEMEN: As a body of tradesmen you did all in your power to procure for your craft legislation at the last session of the Legislature at Springfield. No doubt you considered well the advantages this legislation would be to owners of stock if such a bill had passed in the favor of your tradesmen; certainly if such a bill had become a law the public were assured that their horses were being shod under the supervision of tradesmen who were qualified, and knew what shoe was required and if the foot was in a condition to be shod. We are aware that many horseshoeing shops in this city have been run by parties who know nothing about the trade they have entered into, and some parties running around among owners of stock contracting and offering to do work much cheaper than your capable boss horseshoers would think of doing it for, causing you no end of annoyance and loss of customers to many of you, who had earned your knowledge of the business by your many years of apprenticeship and experience under other employers previous to entering into business as a capable and trusty boss horseshoer. Certainly, you gentlemen of the Association thought well of the necessity of the passage of such a bill and what the advantages to the public would be if such would become a law. Gentlemen, in our opinion, your ideas of such a bill were grand. As an Association you had fully realized the necessity of the same, owing to the many parties just referred to starting up places of business and hanging up signs over doors: "John So and So, practical horseshoer." You all considered that such a proceeding was an imposition upon the owners of stock, and you considered a man who was not capable of shoeing a horse ought not to be allowed to represent himself to the public as a boss horseshoer; therefore, the passage of such a bill was necessary for the protection of those who were owners of horses from those unscrupulous men who dared to represent they were capable of doing what they were not. But, again, how many of this Association, who were so very anxious for the protection of the public against such men, state and represent to the public and owners of horses that they are not only boss horseshoers but veterinary surgeons, and capable of attending to all the ills the horse is heir to? As an intelligent body of tradesmen who lately, through your Association, asked for legislation, have you ever considered that those of your Association who, by card and other ways, so wrongfully represent themselves to the public as veterinary surgeons, ought not first to take the mote out of their own eyes? Certainly, gentlemen, your motto is: "Do unto others as we would have others do unto us."

A few practical examples regarding horseshoers acting as veterinary surgeons will call to your mind the fact that we are right in protesting against its continuance. Take "nail wounds," for instance. How many horseshoers are there who will refuse to treat them, telling the owner of the horse that it is the work of the veterinary surgeon to treat it? Do you do this? No. You tell the owner you can fix that up in a day or two. Your treatment (?):

You pour an acid into the wound. You cure a good many cases (?): Yes, if the hole has been so small that the acid did not penetrate into the delicate tissues the horse gets well quickly, provided the germ of lockjaw did not enter with the nail. On the other hand, if the hole was large and the acid enters freely, the horse stays lame until the owner gets disgusted and calls in a veterinary surgeon, who finds one of several conditions—*i. e.*, he enlarges the opening and finds a lot of dead tissue, due to the caustic action of the acid, acting as a foreign body in the foot, keeping up inflammation and pain; frequently upon removal of this, with a day or two of proper treatment, the animal goes sound. Another and more common condition we find is pus being discharged from around the coronet, due to the kind horseshoer stopping up the nail-hole either by the use of the acid, which swells the tissues, or from the aforesaid dead tissue acting as a plug, which prevents the free discharge of pus from the bottom of the hoof. Consequently it works upward, and either greatly prolongs the misery and uselessness of the horse or results in his destruction entirely.

Gentlemen, we will ask you, up to a few months ago, until the founding of your worthy school, how many horseshoers knew how many bones there were in a horse's foot or anything whatever about the blood- and nerve-supply? What do you know about germs--such microscopic germs as cause tetanus (lockjaw), blood-poisoning, and numerous other diseases? What do you know about antiseptics or germ-destroyers? About, say, the pathology of even a nail-wound?

Would *you*, if you stepped on to a nail, go to the man that made your shoes to treat it? We find the same horseshoers who cannot tell us how many bones there are in a horse's foot frequently, yes, daily, dispute with us regarding the location of lameness, usually locating it in the shoulder, the most powerful part of the leg and most free from sprains, overlooking entirely the tender part, especially below the knee and more especially the foot; overlooking entirely the fact that the slender tendons below the knee or complicated joints are more prone to a sprain than the powerful muscles of the shoulder.

Again, take the foot. Few can understand how lameness can exist in it when it is apparently a perfect foot. Yet it can, to external appearances, be a perfect model of a hoof and still be the seat of the malicious navicular disease, or, possibly from an old nail-prick, there is a bulging of horn or perhaps a small growth of bone impinging upon the sensitive structure of the hoof, etc.

Aside from nearly all who make it a point to treat nail-wounds and lameness, there is the horseshoer who is so elated over his smartness that he gets cards printed: "John Jones, veterinary surgeon;" and perhaps he buys a float, and then he is a veterinary surgeon and dentist. What are his qualifications? He has rubbed up against horses a number of years and is the proud possessor of perhaps Kendall's *Spavin Cure*, *Horse-Doctor Book*, or some similar quack-book.

What does he know? Does he know anything even about the first principles of practice; that is, the pulse and temperature? For instance, a member of this Society a few weeks ago was called to a sick horse. The first thing done was to feel the animal's pulse; from its condition the owner was informed that the horse would die inside of twenty or thirty minutes, when the horseshoer veterinary surgeon stepped up and said: "Doctor, that's also what I think." Upon hearing this the owner spoke up, saying to said quack: "What the d——l do you mean? Only five minutes ago you told me the horse was getting better and could go to work to-morrow." Our member then found that the said horseshoer veterinary surgeon had been treating the animal for a disease he did not have and giving medicine that, under the circumstances, acted as a deadly poison to the horse.

The men of this class know nothing regarding the intricate action of drugs, of their indications or contraindications in disease. They only know about five diseases and about so many prescriptions copied out of a book written by a man equally as ignorant, for the reason that the man who is content with such knowdelge is too ignorant to comprehend the meaning of the language in first-class veterinary works, and yet the woods are full of horseshoers who usurp the duties of the veterinary surgeon. Such men are an injury to yourselves, a detriment to the uplifting of your calling, an injury to the horse, and an enemy to the public. As long as such men exist, so long will your calling be relegated to the ranks of the ignorant. It is your duty to shoe a horse, know when and how to shoe him properly, and correct such faults of the locomotory apparatus as can be corrected by shoeing, and leave the doctoring to those men who are qualified and have studied specially to do so; men who are graduates of recognized veterinary colleges and understand every department of the horse's body, together with its ills and pains, as well as proper treatment.

Gentlemen, we ask you to consider the foregoing statement carefully. Consider it as a friendly argument, coming from your friends, and not from enemies. We are your friends, for how often do we find an animal lame from a nail-prick while being shod; and we invariably, where the owner does not know otherwise, cover the error by not mentioning the real cause, or, where he does know, we help you out and save the customer for you by explaining that such occurrences are due to the nail bending on account of being a little softer or thinner at one part than it should be, or striking an extra hard spot in the wall or a piece of a nail which has remained imbedded in the wall. What return do we get for this kindness?

Gentlemen, we will close by asking you to let doctoring alone. Live and let live. Wishing you success in getting your bill on legislation passed, we remain,

Yours respectfully,
LAWRENCE CAMPBELL, D.V.S.,
Secretary Chicago Veterinary Society.

CHICAGO, Feb. 12, 1897.

CONTROL WORK.

Pennsylvania. Troy, Athens, Towanda, and Canton have notified all milkdealers through their local boards of health that all animals furnishing milk for the citizens of these places must be inspected by competent veterinarians and be free from tuberculosis.

Missouri. *Bulletin No.* 37 of the State Experiment Station records the results of some interesting experiments bearing upon the transmission of Texas-fever by the ticks. Ticks hatched in the laboratory and placed upon some Missouri short-horn cows in lots free from any possible infection resulted in fatal cases of Texas-fever in from thirteen to eighteen days. Some dipped cattle from the Texas Experiment Station (West Virginia mineral oil being used) were sent to Missouri and placed among some susceptible short-horn cattle from August 13th to November 1st without the development of any symptoms of Texas-fever. Some inoculation experiments have been made which promise very well and which may prove a thorough and inexpensive solution of this problem.

National. Secretary Wilson, of the Department of Agriculture, has determined upon plans looking to the eradication of hog-cholera. Several centres of work in this direction will be established, where the coöperation of the people may be secured. The Government will assume the entire charge and the expense incidental thereto, and pay for all hogs killed at their pork-value. Careful microscopic and chemical examinations and analyses will be followed with the hope that results may be obtained which will warrant a general effort in this direction another year.

Nevada. This State will have to raise up barriers of protection at an early date or she will find her people burdened with an additional load beyond the ability of the agriculturists of any State to sustain. We refer to the recent sale into that State, by a well-known breeder in the East, of two carloads of thoroughbred cattle from a herd known to have tuberculosis among them, and the progeny of which the owner found it difficult to sell at home without subjecting them to the tuberculin-test and the production of a certificate showing the animals to be free from tuberculosis. The date is rapidly approaching when interstate inspection must be established and a greater security furnished our stockraisers and breeders from these controllable sources of danger.

BOOK REVIEWS.

LEHRBUCH DER VERGLEICHENDEN PATHOLOGIE UND THERAPIE DES MENSCHEN UND DER HAUSTIERE, FÜR THIERARSTE, ARZTE, UND STUDIRENDE. von DR. GEORG SCHNEIDEMÜHL, Privat Docent der Thiermedizin au der Universitat, Kiel.

TEXT-BOOK OF THE COMPARATIVE PATHOLOGY AND THERAPEUTICS OF MAN AND THE DOMESTIC ANIMALS, FOR VETERINARIANS, PHYSICIANS, AND STUDENTS. By DR. GEORGE SCHNEIDEMÜHL, Instructor of Veterinary Medicine at the University of Kiel. Vol. i., 1895. Vol. ii., 1896. Published by Wilhelm Engelmann, Leipsic, Germany. Price, vol. i., 5 marks ($1.25). Vol. ii., 6 marks ($1.50). (Vols. iii. and iv. to follow.)

THIS book is intended to be a manual for teachers, investigators, and practitioners, from which they can gain all necessary information in regard to the many questions of veterinary science which arise in investigation and practice. By it, it is hoped, the student of human medicine and veterinary medicine may early learn to direct his attention to the most important points of general medicine, and so from the start render the understanding of many questions much easier. But, above all, its purpose is to introduce the veterinarian and the student of veterinary medicine to the study of comparative pathology and therapeutics, and to give in concise form not only a general survey of the subject, but at the same time sufficient detail for practical purposes with reference to standard authorities and hints as to the field of investigation still unoccupied.

In an admirably clear and concise introduction of nine pages the author gives a history of the study of comparative pathology from Hippocrates to Virchow, with the general results so far obtained. Two pages are devoted to the importance of experimental pathology, with many hints as to the methods of procedure and the opportunities which are offered the veterinarian for investigation at present. The general differences in the symptoms and course of diseases in man and in animals are next pointed out, and then general therapeutics is treated, bringing the subject down to the latest discoveries, such as preventive inoculation, etc. The introduction concludes with a survey of the efforts which are being made at present in various countries for further investigation of the subject. Germany, France, England, and the smaller Continental countries are all considered in dealing with the subject.

Vol. I. (200 pages) treats of the infectious diseases of man and the domestic animals.

Vol. II. (240 pages) treats of poisons; diseases of man and animals caused by parasites; constitutional diseases; skin diseaess.

As an example of the method of the author we give a short account of his treatment of glanders, the second disease treated of in Vol. I. Eight pages are devoted to the subject. At the start the scientific name is given; then follow the names applied to the disease in Germany, France, Italy, and England.

Half a page is devoted to the history of the disease; when and by whom it was first noticed; the names of those who have investigated it; how views have changed in regard to it; the latest discoveries, etc. The list of names extends from Aristotle to Virchow, and includes both those who have studied the disease in man and those who have studied it in animals.

Two paragraphs are devoted to the method of spreading and the appearance of the disease; valuable statistics are given and the animals mentioned which enjoy immunity against the disease.

A paragraph is given to the bacterium; its description and conditions of propagation. Another paragraph to its effect upon the animals, the organs affected, and the pathological changes. Lastly, the tests for the bacilli.

Two pages treat of glanders in man under the following heads: Causes, symptoms, and course of the disease; the anatomical conditions after death; diagnosis, prognosis, and therapeutics.

Five pages are devoted to glanders in animals. Causes in the horse, anatomical conditions of the organs affected, symptoms and course of the disease; diagnosis, differential diagnosis in regard to the various phases the disease may take; prognosis and therapeutics.

A half-page is devoted to an account of veterinary police regulations in the various European countries, the attitude of the sanitary police in regard to meat from affected animals, and finally the laws that have been enacted in regard to it in the various European countries.

A good index accompanies the volumes. The text and paper are all that can be desired. The author has drawn on all the standard authorities for the various diseases.

The work appears to have been prepared with the thoroughness and conscientiousness characteristic of the Germans. It is admirable for conciseness and completeness, and we believe that as a manual it admirably fulfils its aim as a help to both the practitioner and the investigator.

One of the best points is that all the very latest statistics, results, and discoveries are contained in it.

THE ENCYCLOPÆDIC DICTIONARY. Syndicate Publishing Co., Philadelphia, 1897.

A WORK in four volumes, complete in covering the entire English vocabulary, with those of recent acceptance in the newer fields of scientific investigation, made more valuable by many suggestive illustrations and full-page reproductions, in colors and black, of the greatest interest in elucidating the field covered. We have looked for many of the more common terms, some of the obscure ones used in veterinary science, and found in each one a clear, concise definition, in many instances illustrations, to better afford a clearer conception. With this work in their libraries, veterinarians will be well equipped, will find a great time-saver and a help in reading, an assistant in writing, and a support in better expression of inestimable value. The fourth volume contains a series of tables, of popular terms and expressions, colloquial names, and many other pages of abbreviations and matters of interest, value, and importance to the busy everyday practitioner.

COMMENCEMENT EXERCISES.

NEW YORK COLLEGE OF VETERINARY SURGEONS.

The commencement exercises of this College were held at the College Hall, 154 East Fifty-seventh Street, April 1st. After the conferring of the oath of Hipprocrates and a short speech by the President of the College, Herman M. Biggs, M.D., the diplomas were awarded to the following gentlemen: James Burns, Newark, N. J.; Fred. L. Bodwell, Manchester, N. H.; William Eckl, Brooklyn, N. Y.; Albert Hecker, Albany, N. Y.; John S. Jones, Poland, N. Y.; John B. Jones, Marlboro, N. J.; Elmer Judkins, Ohioville, N. Y.; Alfred Heard, New York; Alfred J. Pitcher, Warrensburg, N. Y.; Joseph Saile, Brooklyn, N. Y.; Charles F. Spies, Belmar, N. J.; Edward K. Stretch, Hoboken, N. J.; Thomas E. Smith, Jersey City, N. J.; Frank Sturges, Melrose, Mass.; Harry Q. Thompson, Deering, Maine.

Frank P. Sturges was awarded the gold medal for general proficiency, and William M. P. MacKellar the silver medal for passing the best junior examinations. The practical prize—a set of instruments—was awarded to Harry Q. Thompson and Thomas E. Smith.

Later a dinner was served at the Hotel Marlborough, Fred. L. Bodwell, V.S., as toast-master.

Besides the graduating class, the trustees and the Faculty, there were present representatives from the junior classes and a large number of the alumni. The toasts were drunk with enthusiasm, and the responses were attentively heard.

Dr. Hecker said:

It is with feelings of much hesitation that I undertake to express, on behalf of myself and the other members of the class of '97, the appreciation which we all feel for the endeavors which have been made in our behalf by the Faculty of this institution. Neither by words, nor otherwise, is it possible for us to express the worth of your services to us. The measure by which to express the value of services which render a man proficient in a profession by which he is not only to gain his livelihood, but which is to determine his standing in the community where he is to live, and the respect which he is to command from his neighbors, does not exist. It has been your constant aim to do everything in your power to fit us for the life work which we have deliberately selected for ourselves; to perfect us in a profession which, although as a profession comparatively new, has already taken rank as one of the learned professions, which is now receiving the most serious consideration from scientific men, and commands the interest and respect of all humane people. We appreciate the efforts you have made in our behalf. We appreciate that in your work you have been actuated by higher motives than are to be found in any pecuniary consideration. We know that you have felt a sincere and genuine interest in our progress here and in our future, and that not the least of your compensations for your work is to be found in the hope which you entertain that we may succeed in becoming a credit to the college and to our instructors. And if we shall succeed, I know of no one to whom that success will bring more sincere and genuine satisfaction and pleasure than it will to those who have fitted us for our work.

Speaking not only for myself, but in behalf of all those whom I represent, I thank you, and I assure you that we shall all endeavor to be a credit to the profession for which you have assisted us in preparing, and a credit to the college. But we remember, and shall all bear in mind, that "an honest endeavor is worth ten promises."

To the gentlemen of the class of '97, with whom I have been so pleasantly associated, I wish to express my thanks for the honor which they have conferred upon me, and I know of no better way in which I can do so than in the most direct one. Our association here at the college has not only been a pleasant one, but it has, in more ways than one, been a most profitable one. We have not only been able to assist each other to pleasantly while away some leisure hours; we have not only been enabled to be of service to each other in the study of our chosen profession; but the mutual regard and respect which we have learned to entertain for each other have, of necessity, increased in every way our respect for ourselves and our profession.

The remembrances connected with our association here will never cease to be an incentive to us in whatever direction we may turn. This day, to which we have all looked forward with pleasure as the day on which we should be finally launched upon our future work with all its happiness and all its anticipation, would not be complete without its regrets—the regrets of parting from warm friends and pleasant associations. But I hope, and I know, that neither stretch of country nor lapse of years will ever rob us of our mutual friendship and esteem or of the pleasant recollections of these months at the college. I know that any success or good fortune that may come to any one of us will be heard as good news by us all, and that the years cannot move slowly enough to make us forget the pleasures of our association or the regrets of our separation.

Toast, "Professional Ethics," responded to by Prof. R. S. Huidekoper, who said :

You have just finished your course of college education which has prepared you for professional life, and you will now find that the real education which will *fit* you for your professional work begins. Your responsibilities while in college ended with your own individual interests and conception of duty. After answering at roll-call at lecture you could listen for an hour, or take a nap, as you liked; after roll-call in the dissecting-room to pacify me you could work for hours, or, a half hour after my back was turned, I might find you occupied with beer and billiards at Krause's, or talking trotting-horse and stable-business with Kaplan. Now, you are going back to your homes or the location which you have decided upon for your practice, and you will find yourseleves looked upon by very critical eyes. You will find that upon your return to a local community that the public will regard you as a sort of prodigal son, and will not only welcome you, but will give you credit for far more knowledge than you really possess. Your old friends will be seeking knowledge from you, and old horsemen and the fire-fender crank will want to teach you the importance of panaceas which at some time of their lives cured some single case, or they will try to guy and lead you into compromising positions.

In your new life you must determine that you must adopt new friends. To insure your future success you have not only to retain the personal and often selfish friendship of your old acquaintances, but you have to build yourself into the esteem of the strangers whom you will meet. In the first place, be careful of the selection of your office. If you have a stable of your own, fit up a neat room in it near the house; have a neat stall or more for temporary use or keeping a horse, and have your gate and yard in good order. If you have to acquire a location, secure the best you can, from a single office room to a stable, which can be transformed into an infirmary, in the most prominent part of the town which your means will allow. Do not associate yourselves with any livery-stable or hotel, or become identified with them. They will want your services for nothing, and your connection with them will insure you the enmity of others.

Call at once upon the other veterinarians in the locality, and make the acquaintance of the physicians of human medicine and any scientists who are near you. After joining the local or State veterinary society of your region, join if you can the local medical society, for from its meetings you can learn much of the general principles of medicine, and as the members learn to appreciate your special application of medicine they will be of direct use to you in spreading your renown. If there are boards of health or of agriculture within your reach, become associated with them, and obtain a position under them if possible. Even if your remuneration for work for them is not great, you will find that the public gives credit to a man with an official position.

Find at once the average of fees of other veterinarians in your locality, and then determine upon your own, and write out a schedule of them in the front of your ledger, and make them invariable. Some time ago I sent out a circular to all the members of the United States Veterinary Medical Association, and I found that the fees for the larger cities were, on an average, $2.00 a visit for first animal; varying from $1.00 to $3.00. In the country from $1.00 to $1.50, and $2.00. In New England and in localities in the country where the graduates came from Harvard and the University of Pennsylvania, the fees were the highest, and where the graduates were principally from some of the old diploma mills, the fees were the lowest. I found a great want of unanimity in the fees for operations requiring the use of contention, hobbles, etc., and those bringing blood, and as regards the furnishing of medicine.

I would suggest that, according as you find the fees of others in your neighborhood, you adopt a scale somewhat as follows, within reasonable distance of your office: Visit—first animal, $1.00, $1.50, or $2.00; for each additional animal, 50 cents to $1.00. For minor operations requiring the use of twitch or bringing blood, $3.00 to $5.00; for operations requiring hobbles, $5.00 to $15.00; examination for soundness and consultations, usually, $5.00; for distances beyond a reasonable distance—that is, the radius of your town and its immediate suburbs, an additional charge of 50 cents to $1.00 per mile; for long distances by railroad and for expert services in court or elsewhere requiring an entire day's time, a fee ranging from never less than $10.00, and better $20.00, $25.00, or even $50.00 in special cases, to which you add cost of railroad fare or other transportation. This fee should be equal or greater than the very best day of your practice.

My reason for making the fee for use of contention and minor operations, to bring blood, greater than an ordinary visit, is that you run the risk of injury, the risk of soiling your clothes, and that you have to display expert skill. For use of hobbles the fee should be large, because with all and the best of care your patient will occasionally break its back, and your reputation—through no fault of your own—will in the majority of cases have its back very severely strained, and remain so for some months. This applies also to the operation of castration.

In regard to furnishing medicines, I consider it by far the better plan and preferable to writing prescriptions. Graduate your powders into packages of two for immediate use and repeat, or a dozen for several days; your lotions into pint or quart bottles, and your liquid remedies into bottles containing from a fixed number of doses to the pint to one pint or one quart drenches—one dose to the bottle—and have a fixed price, which is in addition to your visit. Of course, certain special remedies must be a special price.

Having fixed your schedule, adhere to it. You will naturally often be glad to render gratuitous services to the tinker, the peddler, or old Pat, the ashman. But when one liveryman or a decent farmer is paying you for your services, do not let a meaner neighbor persuade you to lessen your charges or bill one cent, under the plea of continuing to employ you, or because he will otherwise employ another veterinarian. Let him employ the cheaper and probably poorer man; he would probably be the last client to pay your diminished bill and the first one to leave you and hunt another cheap man when you have finished your case.

Dress well and keep your clothes in good order; look and act like a gentleman, and your clients will the more cheerfully pay your expenses. Keep out of horse-deals, especially when your professional opinion is in any way involved in them. Treat other veterinarians with courtesy, but in a professional case or consultation do not let any courtesy or feeling of personal friendship bias your judgment or influence your expression of your own views of a case. Marry a pretty girl as soon as you can pay her expenses, and I sincerely hope for you a successful future.

Dr. Sturges responded, saying to the graduates:

These, our last hours together are ones to be long remembered with feelings of both pleasure and regret—pleasure, for the reason that we have reached the goal for which we have been striving for the past three years, and now, that we have attained our object, there is an undercurrent of regret which we cannot suppress, as we leave here, perhaps never to meet again, each man to go his own way, however distant, and to strive by dint of hard work to reach the highest pinnacle of success which is so precious to us all, and which we can only attain by hard and conscientious work.

We possibly had the mistaken idea when first entering upon our studies that to become the so-called "horse-doctor" was an every-day occurrence, but we were soon undeceived, for after attending a few of the preliminary lectures we began to realize that there *was* work, and hard work too; we find in it not only a study to be confined to our three years of college life, but a lifelong one, and one in which to be successful must be grafted with sound common sense.

Why should we not this evening be thankful that we have received our degrees and are entitled to practise our profession, which is a *noble* one if we just stop and consider what we are called upon to do; we are not treating the human being that can tell us its troubles, but dumb animals, which are incapable of articulating a single word, and whose troubles can only be evidenced by signs, which at times are very vague indeed. Our lives now are to be devoted to this. Of course, we are looking for replenishment of our pocket-books; this is a business, and should be conducted as such, but don't let our greed for "that article that glitters" blind us to such an extent that we forget a dumb animal can suffer as does the human being.

Some of us undoubtedly feel despondent when we see the numerous bicycles and horseless carriages, thinking, perhaps, that the horse has had his day, and is to become a thing of the past; but it will never be said of the horse race that "*they* have seen better days." Why were horses given us, and why later become domesticated to answer so many useful as well as pleasurable purposes? To become superseded by those inanimate and shapeless objects—bicycles and motor carriages, which have neither life nor responsive feeling? No; they are here for a purpose, and that purpose is not yet accomplished, nor will it ever be. With all due respect to the brains that invented these mechanical articles which are endeavoring to supersede the horse, but which cannot ever gain the ascendancy over him, we must conclude the bicycle subject.

Now, for a moment stop and think of the numerous openings there are for the veterinarian, such as never before; for instance, that of meat- and milk-inspection; how important this little detail is in itself, when we consider the immense amount of damage that could be done by leaving this branch unguarded; then, again, the veterinarian is called upon for the physical examination of the animals used for vaccine purposes, this vaccine to be used to immune man against that dreaded disease, smallpox, and within the last few years the antitoxins have sprung up and are being extensively used, and we all know, from our short time here, how important they are and to what extent the veterinarian is connected with their production.

We are now professional men, and should conduct ourselves as such, and endeavor to do our work in a professional manner. There are enough empirics at large without any more joining the ranks; become members, active ones, if possible, of the leading veterinary societies, and endeavor to suppress or stamp out this evil, which is degrading our profession; surely, there are enough prominent veterinarians to overcome this, and we must do our share in the matter and not leave it all to the older heads, who, perhaps, have fought until they are weary, and to whom renewed vigor from younger ones would act as a stimulus. It surely is discouraging to a student who, after expending time and money for a collegiate education, to find upon graduating that he has long and hard work in store for him to combat with these so-called "quacks."

We should also make ourselves familiar with both national and local topics, and be able to converse with the people; don't let them get the erroneous idea that our entire knowledge is confined to our profession; get in the best society and hold up our heads. Why should we not? Surely, our aim in life is higher than a great many whose company we may be in at the time.

We have this day taken the Hippocratic oath; let us live up to it.

Now on parting, each and every one of us should make up our minds to uphold the good name the older ones have given the veterinary profession; let each man do his best, and don't have it said that the "Class of '97" sank entirely into oblivion.

To the faculty:

We have now to bid you farewell, you who tried so hard to impart some of your knowledge to us, and which you may be sure we appreciate and shall ever retain in our memory.

We were fortunate in having the opportunity of being students to the able corps of teachers whose signatures we will be only too proud to point to on our diplomas.

We have tried hard to grasp the new ideas advanced us by you, and can understand what a task it must have been, day after day, to endeavor to instil a little of your knowledge into our cloudy brains. We have tried our best to retain it until our poor brains were narcotized with the effort, and is it any surprise, even with the best intentions and respect to you, that we would become drowsy in some of the lectures? Indeed, we have fought many a bitter fight in our heroic endeavors not to look sleepy, and have usually succeeded in winning, perhaps, owing to the hour coming to a close, or to some kindergarten idea which we flattered ourselves we could grasp and retain until our examinations, and then with what joy did we impart it again to you, as does the phonograph to a gaping crowd; but, we all seriously thank you for the foundation of our future life and success; it has been firmly laid, and with this foundation there is no reason why we should not do credit to you who so willingly and freely imparted it to us.

Naturally we are impatient to begin our new life; but withal, we feel deep regret in leaving you, for now, when in doubt, we have no father confessor to come to, no one to lean on, we must rely entirely upon what we have obtained in our brief time as your students, and which cannot but help to pull us through.

There are those among you whose names are known not only here, but across the water, and why should we not feel proud at having served our apprenticeship with you? We hope at some future time to meet you and show our appreciation, other than in words, as these few remarks give but an indefinite idea of what we owe you, and of our thanks. Now, dear teachers, you may rest assured that there is one part of our college life we shall always remember and hold in the highest esteem and love, namely, "The Faculty."

McKILLIP VETERINARY COLLEGE.

The commencement exercises of the college were held in Assembly Hall, Tuesday evening, March 30th. After prayer by Rev. Dr.

Staff, Acting Dean Schoenleber addressed the students, followed by a salutatory by Dr. E. Merillat. An address was also made by Dr. E. M. Reading; "Class Prophecy," by S. Hutson Caldwell; "Class Poem," by W. S. Powell; "Class History," by O. R. Dubia. After the valedictory by E. H. Brown the degree of M.D.V. was conferred by President McKillip on the following graduates: Ernest H. Brown, Hawarden, Iowa; John B. Boomer, Chicago, Ill.; John H. Crawford, Racine, Wis.; S. Hutson Caldwell, Chicago, Ill.; Charles N. Ferrier, Jamestown, N. D.; E. Merillat, Toledo, Ohio; W. S. Powell, Sparta, Wis.; O. R. Dubia, Chicago, Ill.; George J. Tyner, Paradise, Ind.; and Harry O. Davis, Chicago, Ill.

The exercises were witnessed by a large number of invited guests.

VETERINARY DEPARTMENT, COLUMBIAN UNIVERSITY.

The commencement exercises of this school were held April 10th, in the lecture hall of the University. On the stage were seated President Whitman and the Faculty of the school, with the ten graduates. After an overture by the orchestra, Rev. John O. Knott offered prayer. Prof. D. E. Salmon addressed the students, discussing the progress in medical science and its application to animals. The valedictory was delivered by Mr. Elbert C. Switzer, after which President Whitman presented diplomas to the following graduates: Reid R. Ashworth, of Rhode Island; William H. Boyln, of Virginia; Basil A. Brown, of England; William P. Ellenberger, of Illinois; Joseph Neilson Megary, of Maryland; Floyd G. Scannel, of New York; John Shaw, of Delaware; Elbert C. Switzer, of Massachusetts; Robert H. Twitty, of North Carolina; George Ransom White, of Tennessee. Dr. Whitman, in his closing remarks to the graduates, stated that the University would follow their careers with interest. They would always find a cordial welcome there.

The following gentlemen obtained a high general average in their examinations and were given honorable mention: Reid R. Ashworth, Elbert C. Switzer, and George R. White.

INDIANA VETERINARY COLLEGE.

The annual commencement exercises were held March 26th at the college building, 18–24 S. East Street. The exercises consisted of addresses by Dr. L. A. Greiner, Secretary of the College, Dr. Thomas Gaddes, Dr. E. H. Pritchard, and Dr. F. A. Mueller, after which Dr. T. L. Armstrong awarded the diplomas to the following: Clarkson Gause, Carthage, Ind.; David Waugh, Pittsburg, Pa.; Robert F. Harper, Indianapolis, Ind. After the exercises the graduates of the Indiana Veterinary College met and an Alumni Association was organized. The following officers were elected: Thomas Gaddes, M.D., V.S., President; Joseph Creedon, V.S., Vice-President; L. A. Greiner, V.S., Secretary; F. A. Mueller, Ph.G., V.S., Treasurer. The following were elected trustees to serve one and two years respectively: Dr. Harry Smock, Franklin, Ind.; Dr. Wilbur Ramsey, Middletown, Ind.; Dr. J. B. Heaton, Bloomfield, Ind.; Dr. S. Rodebaugh, New Augusta, Ind.; Dr. Clark Gause, Carthage, Ind. The meeting then adjourned, and a general good time was had the balance of the afternoon.

ONTARIO VETERINARY COLLEGE.

The exercises at the closing of the session of 1896–'97 took place on March 26th. The Principal, Prof. A. Smith, F.R.C.V.S., in the chair; beside him on the platform were the members of the Faculty and a board of examiners, most of whom are prominent veterinary surgeons who are practising their profession in Canada and the United States.

Prof. Smith opened the meeting with a short but eloquent address. He congratulated the successful students on passing the searching ordeal of a final examination. They were now about to engage in the "battle of life" by putting the knowledge they had been acquiring by study into actual practice, and he most heartily wished them every success in their chosen profession.

Mayor Lloyd gave the recent graduates some excellent advice, founded on many years' experience, as to their conduct and deportment with the public at large, urging the necessity for aiming at a high standard; of honorable dealing with the public at large, as well as to still keep pressing onward in the race for knowledge, as only by those means could future success be assured.

Prof. J. H. Reed, of the Guelph Agricultural College, also gave a short address; among other matters, he particularly mentioned that a proper standard of professional ethics and etiquette should be strictly observed in our dealings with brother practitioners; that we should each and all strongly disapprove of deprecatory remarks directed against our neighboring brethren, and by no means to class them as opponents, but as all pressing forward for the same goal

—the advancement of our own knowledge and the advancement of the profession at large.

The addresses were all warmly applauded by the students and graduates.

The degree of V.S. was then conferred on the following gentlemen:

E. L. Bertram, Strausstown, Pa.; George C. Bowen, Newark, N. J.; Wallace P. B. Brennan, Parkhurst, Quebec; Frank W. Bryant, Sunderland, Ontario; Clinton H. Bugbee, Keene, N. H.; Henry Buss, Deansville, N. Y.

Wallace Caister, Tavistock, Ontario; George R. Caldwell, Ashton, R. I.; John B. Campbell Grandin, N. Dak.; Herbert B. Chaney, Akron, Ohio; Robert C. Cliff, Hamilton, Ontario; T. J. Cooper, Lockport, N. Y.; W. R. Cross, Beeton, Ont.; Clarence W. Clark, New Britain, Conn.

Wilson S. Decker, Scranton, Pa.; John Dodd, Glasgow, Scotland; James A. Durkin, London, Ont.

Thomas A. Ewart, Wyoming, Ont.; W. H. Erwin, Mason, Mich.

Robert J. Farley, Toronto, Ont.; Andrew L. Fosse, Deerfield, Wis.

George J. Grange, Guelph, Ont.

George Hilton, Winnipeg, Manitoba; Fred. R. Hodgson, Forest, Ont.; Fred. A. Hoskin, Forest, Ont.; Charles S. Horne, Walnut Grove, Miss.

John N. Johnston, Petersborough, Ont.

Fred. Kemmer, Connersville, Ind.; Newton A. Kippen, Tiverton, Ont.

John J. Linden, Canandaigua, N. Y.

W. Frederick McElroy, Bewdley, Ont.; William O. McHugh, Bridgeport, Ohio; G. A. McKenzie, Deloraine, Manitoba; D. J. McKillop, Bristol, Quebec; John A. McKinnon, Sonya, Ont.; Alfred A. McLachlan, St. Johns, Newfoundland; W. McCorkindale, Toronto, Ont.; C. S. Macdonald, Toronto; Ont.; Rudolph J. Marshall, Hoosick Falls, N. Y.; Wilfred J. Meloche, Ogdensburg, N. Y.; Walter D. Monk, South March, Ont.

Alfred J. Nelson, Stoughton, Wis.; Isaac S. Norton, Marshall, Minn.

Robert D. Orr, Baden, Ont.; Thomas M. Owen, Gaithersburg, Maryland.

Jesse H. Pierce, Smithfield, Pa.; Charles A. Prouty, Putney, Vermont; George S. Price, Fenwick, Ont.; Howard F. Pegan, Cochranton, Pa.

W. W. Richards, San Diego, Cal.; J. R. F. Rochester, Denton, Maryland; G. Vernon Rowcroft, Birtle, Manitoba.

Andrew Seim, Ayton, Ont.; D. K. Smith, Toronto, Ont.; Lyndon S. Smith, Cornish, N. H.; George P. Statter, Sioux City, Iowa; Jasper J. Smart, Sherborn, Mass.

Charles E. Taylor, Sawyerville, Quebec; A. E. Tweedie, Ivanhoe, Ont.

J. Eugene Underhill, Middletown, Conn.

Charles E. Virtue, Mt. Gilead, Ohio.

William H. Wheeler, Stamford, N. Y.; John W. Will, Petrolia, Ont.; J. A. H. Winsloe, Buffalo, N. D.

The prize winners were as follows:

Disease and Treatment. Seniors: First prize, silver medal, G. Hilton; second prize, H. B. Chaney; third prize, E. L. Bertram, R. C. Cliff, and W. W. Richards. Honors: F. W. Bryant, G. R. Caldwell, W. J. Meloche, A. A. McLachlan, T. M. Owen, J. R. F. Rochester, G. V. Rowcroft, A. Seim, L. S. Smith, W. H. Wheeler, and J. A. H. Winsloe.

Materia Medica. Seniors: First prize, George Hilton; second prize, Robert C. Cliff; third prize, Wilfred J. Meloche. Honors: Frank W. Bryant, Clinton H. Bugbee, Herbert B. Chaney, Wallace Caister, George B. Caldwell, and W. W. Richards.

Chemistry. Seniors: First prize, R. C. Cliff; second prize, G. Hilton and R. J. Farley; third prize, H. Buss. Honors: C. H. Bugbee, G. C. Bowen, G. R. Caldwell, A. Ewarts, N. Kippen, W. D. Monk, W. J. Meloche, W. O. McHugh, J. R. Rochester, G. V. Rowcroft, A. E. Tweedie, and W. H. Wheeler.

Morbid Anatomy. Seniors: First prize, G. Hilton; second prize, T. J. Cooper. Honors: E. L. Bertram, H. Buss, C. H. Bugbee, G. R. Caldwell, R. C. Cliff, H. Chaney, H. Kippen, G. V. Rowcroft, and W. H. Wheeler.

Anatomy. Seniors: First prize, silver medal, R. C. Cliff; second prize, G. Hilton; third prize, W. O. McHugh. Honors: E. L. Bertram, G. C. Bowen, F. W. Bryant, C. H. Bugbee, H. Buss, W. Caister, G. R. Caldwell, H. Chaney, W. Cross, T. J. Cooper, W. S. Decker, J. Dodd, R. J. Farley, F. Hodgson, F. A. Hoskin, J. N. Johnson, N. Kippen, W. F. McElroy, G. A. McKenzie, W. J. Meloche, R. D. Orr, T. M. Owen, G. V. Rowcroft, L. S. Smith, G. P. Statter, C. E. Virtue, W. H. Wheeler, and J. A. H. Winsloe.

Entozoa. Seniors: First prize, C. H. Bugbee. Honors: E. L. Bertram, H. Buss, G. R. Caldwell, T. J. Cooper, R. J. Farley, G. Hilton, A. J. McKillop, W. J. Meloche, W. O. McHugh, J. R. T. Rochester, W. W. Richards, and W. H. Wheeler.

Dissected Specimens. Seniors: Gold medal, given by the Toronto Industrial Exhibition Association, C. S. Macdonald.

Physiology. Seniors: First prize, George Hilton; second prize, W. O. McHugh; third prize, E. L. Bertram. Honors: H. Buss, C. H. Bugbee, Frank W. Bryant, Robert C. Cliff, T. J. Cooper, and W. W. Richards.

Best General Examination. Gold medal, given by the Ontario Veterinary Association, R. C. Cliff. Honors: H. Chaney, G. Hilton, and W. J. Meloche.

PRIMARY EXAMINATION.—*Anatomy.* Seniors: J. O. Henry, L. Pauquette, R. P. Scandrett, Winfield Wallace.

Materia Medica. H. Paine.

Disease and Treatment. Juniors: First prize, C. W. Fisher; second prize, J. S. Pollard; third prize, E. R. Stockwell and W. H. Shaw. Honors: W. L. Adams, L. Bailey, S. Caldbick, W. R. Clark, W. H. Corey, R. B. Coutts, W. G. Huyett, C. H. Jewell, A. Jordan, T. Lambrechts, E. H. Hawley, D. McKenzie, R. Macdonald, J. W. Rutledge, A. Sorensen, H. W. Stedman, T. Sims, Samuel Shepard Treadwell, A. G. Vantine, and A. C. Walker.

Anatomy. Juniors: Silver medal, C. W. Fisher; second prize, T. Lambrechts; third prize, J. S. Pollard. Honors: John Black, W. D. Brand, L. Bailey, S. Caldbick, R. B. Coutts, L. T. Dunn, G. W. Higginson, W. Huyett, C. I. Irons, C. H. Jewell, G. H. Lawley, J. A. McDonald, A. D. McLachlan, R. McDonald, D. McKenzie, J. W. Rutledge, John Short, W. H. Shaw, E. R. Stockwell, T. Sims, C. Stevenson, H. W. Steadman, S. S. Treadwell, A. Walker, and S. J. Waterman.

Physiology. Juniors: First prize, C. W. Fisher; second prize, C. H. Jewell; third prize, T. Rowland. Honors: L. Bailey, E. H. Lawley, T. Lambrechts, D. McKenzie, J. S. Pollard, and T. Sims.

Chemistry. Juniors: First prize, C. W. Fisher; second prize, T. Rowland. Honors: W. D. Brand, L. Bailey, G. R. Cranston, E. C. Elwes, G. F. Irons, A. Jordan, E. H. Lawley, T. Lambrechts, Milton McClellan, D. McKenzie, H. Moore, J. S. Pollard, J. A. Raleigh, T. Sims, E. R. Stockwell, and S. J. Waterman.

Histology and Microscopy. Juniors: First prize, C. W. Fisher; second prize, G. F. Irons; third prize, S. S. Treadwell. Honors: L. Bailey, W. D. Brand, A. Jordan, E. H. Lawley, T. Lambrechts, R. Macdonald, D. McKenzie, and T. Rowland.

In closing, Mr. C. S. Macdonald, President of the graduating class, presented Prof. Smith with a magnificent picture of the class, to which the Principal responded.

In the evening a banquet was given by the Ontario Veterinary Association, presided over by Prof. Smith.

UNITED STATES COLLEGE OF VETERINARY SURGEONS.

The annual examinations of this institution, which have been in progress since April 1st, closed on the 15th. The Faculty presented the following gentlemen for graduation, they having completed the course and passed successfully the prescribed examinations in all branches of veterinary science: Webster Clay Langdon, of Fargo, N. D.; William B. Elliott, V.S., of Riverside, Cal.; William E. Yetton, of Washington, D. C.

The Hon. J. H. Brigham, Assistant Secretary of Agriculture and Master of the National Grange of the United States, was introduced to the Faculty and students by the Dean, Prof. C. Barnwell Robinson, after having opened the ceremonies of commencement with a brief but interesting outline of the history and progress of the College.

Secretary Brigham presented the diplomas to the graduates with a few very appropriate words in which he pointed out the close relation between the veterinarian and the agriculturist, and emphasized the necessity of profiting by their education to make their experience of use to them, of a high standard of rectitude in their relations with their clients, and of humanity toward their patients, thus being true to themselves and to their alma mater.

Prof. D. S. Lamb, A.M., M.D., then delivered on behalf of the Faculty the following address:

At the request of our worthy Dean, I will say a few parting words in this, the closing hour of the third session of the college and the corresponding commencement.

Since a year ago, during which teachers and pupils have been devoting themselves to the routine of lectures and recitations, clinics and laboratory work, the world of medicine, both in its human and comparative side, has been making progress. This progress has been most marked in the domains of pathology, diagnosis, and treatment. Pathology has been notably enriched through the work of the experimental laboratory, and especially by the investigations in bacteriology. The study of the pathogenic organisms; their multiplication, especially in the form of spores; the methods, especially the methods of staining, by which they may individually be recognized; their different forms at different periods and under different circumstances, especially their involution-forms; their strong resemblances and marked differences, and their cultures, by which also they may be identified; their habits and habitats; their relative and actual virulence; the various ways by which they cause death; how they may be destroyed, from the air, from the water, from the soil, from our clothing, houses, and food; from the animal itself; how they may be attenuated or intensified; the relative and actual susceptibility of individuals to their influence and the influence of their toxic products; how long they can preserve their pathogenic powers, and under what circumstances; what is the best and most efficient prophylaxis against them, and what the best and most efficient treatment of the diseases which they cause.

These and other questions which I have not mentioned, are questions which arise and are to be answered in connection with each pathogenic organism. The number and variety of these questions will give sure ideas of the vastness of the subject and the immensity of the work which the bacteriological laboratory is called upon to do. The year's work has been large and various. Just how much of the result promises to be useful in the prevention and treatment of disease remains to be seen. Of course, in our impatient way, we are prone to forget that the progress of the world is in the main by slow and laborious steps. It is only at intervals that we are dazzled by some great and brilliant discovery, as by the comet in the depths of the space around us. So also in our lives, when we sum up the year's work in a pecuniary way, after deducting our expenditures from our receipts, our actual savings may be very small indeed. So also in science, the sum total of progress in the year may seem very small. But the work has been done, it has been good work and useful, and at the end of the year there is a gain, though it may seem disproportionately small.

Perhaps the most interesting and important part of this subject of bacteriological work is that of serums, their prophylactic and curative powers. The subject is broad and deep, the results thus far obtained are at the least very encouraging. We have learned one great truth beyond any question, and that is that a healthy blood-serum is very decidedly germicidal, so much so that the bacteriologist often fails to grow his organism upon it. Thus with the addition of leucocytes, we are, so to speak, twice armed against the germs that may be introduced within our systems. By means of certain methods and processes we are able to procure serums which when introduced into the animal economy are found to prevent or to act as an antidote to certain diseases. Especially among the lower animals has this new truth a great commercial value, apart from what I may call its humanity. How these animals may be inoculated; how they may be immunized; how their early infection with disease may be diagnosticated; how they may be cured by means of attenuated toxins and antitoxins. These are some of the questions and problems which confront us and which are being answered one by one for now this disease and then that.

I am aware that this subject of microöganisms is perhaps becoming tiresome, especially to those who are yet skeptical in regard to it, but it seems to me that the revelations of the microscope and of the staining-methods and cultures and experiments of the bacteriological laboratory are not fairly appreciated even by the most enthusiastic students. The light is as yet too dim to see much of this, as well as of other vast vistas in science. I believe that we as yet but remotely conceive the far-reaching expansion of our vision in the next decade.

I pass by the other items of the pathological advances of the year, and will touch for a moment upon the work of the clinical laboratory. This indeed has revolutionized and is revolutionizing the subject of diagnosis, especially in human medicine. This subject, too, is too vast to dwell upon long. The study of the blood-cells, the leucocytes, the red cells, the plaques, etc., is helping us to a new and unexpected means of diagnosis, which in its way promises as much variety as the other subjects of bacteriology—the number of cells and of each kind of cell in the cubic millimetre of blood at various times, as after a night's rest, after a meal, after meals of certain definitely known constituents, under circumstances of active exercise, of sleep, of sedentary work, in the thousand and one diseases to which man and the lower animals are liable. Not only the number of these cells, varying on occasion, but their size, and shape, mononucleated, multinucleated; their response to various staining-reagents—here is an almost infinite variety. We are only on the threshold of the great building which our children and our children's children are destined to see. There is now added to our means of diagnosis an increasingly powerful and certain help, the value of which is too dimly conceived. I could dwell upon this topic a long time, but dare not.

The diagnosis of diseases of the stomach, in the human subject especially, is now greatly aided by this same clinical laboratory, by the giving of test-meals and their subsequent examination, to determine the digestive power of the stomach; the examination of the stomach-contents in important cases, in medico-legal as well as individually, simply diagnostic. Thus, in regard to the diagnosis of diseases of the kidney, we have the conjoined examination of the urine and the blood. A little blood from the end of the finger may settle the question of malaria, or typhoid fever, or some other disease. A little blood and a little urine may determine whether we have a malignant disease of the urinary passages; permits us to estimate the probabilities of a generalization of the malignant growth.

Again, in the clinical laboratory in conjunction with the physiological, we may determine the action of medicine and diseases under the most favorable circumstances, so far as the lower animals are concerned, and by analogy we may reason out more or less accurate conclusions for the human subject; the results are promising. Taken altogether, the laboratory work of to-day is carrying the modern physician to a place in practical diagnosis and therapeutics beyond the brightest dreams of the fathers in medicine. To this may be added the progress in sanitation, the municipal, State, and personal means by which we may protect our homes; schools and other buildings may be improved in matters of light, of heat, of ventilation; our water-supply purified; our food-supply preserved unadulterated, and our medicines as well; and the thousand other ways by which our municipal and individual health may be preserved, our life lengthened.

One by one an enemy falls, and the time should come, and probably will, when the last one shall perish by the wayside.

New industries, new inventions, introduce new dangers which physician and sanitarian must prepare to meet. We have each an individual duty to perform, the proper diffusion of scientific knowledge is helping toward the good time coming, because as the laity are educated they co-operate with the physician and sanitarian.

Evidently there is a very definite progress each year in the light of municipal and personal rules of health. Our homes are so much better lighted, heated, ventilated, than those of our fathers; our dietaries improved, our clothing more healthful, provided that fashion will permit.

We bathe a dozen times where our fathers bathed once. We have improved at the same time the housing and surrounding of our domestic animals. Cleanliness, which is so close to godliness, is a thousand times better observed in our case than in older times. A word to the gentlemen who graduate.

I can enter somewhat into your feelings of the moment, as you think of the transition you are making from the state of pupilage to that of the practitioner. You have a future, and you hope it may be a bright and happy one; and I hope so, too. But my own experience and observation have shown me that there are two things you ought to make up your minds to do. One is to lead a straightforward, honest, and manly life, despising mean and little things, and trying to do the best you can—good practitioners and good citizens, trying to improve your time and opportunity, commanding the respect and confidence of your fellows. The other is to remember, as the lamented Garfield was wont to say, " It is the unexpected that happens," or as Cardinal Wolsey said:

. . . comes a frost, a killing frost,
And when he thinks, good easy man, full surely
His greatness is a-ripening, nips his root,
And then he falls.

Or that other quotation, the author of which I cannot at this moment recall, and whom you will probably recognize as familiar to you:

" From care and trouble rest your thought,
  Even when the end's attained,
For all your plans may come to naught
  When every nerve is strained."

These things are not said to discourage you. Life's successes are attained by honesty, by diligence, good judgment, industry accompanied by a certain indispensable amount of knowledge of your profession, some more, some less. If you preserve your health, and I hope you will, keep yourselves free from bad habits and observe the other things I have mentioned—you will succeed, and you will deserve to succeed.

I express the sentiment of the entire Faculty, whom I to some extent represent, in commending you to the kindness and moral support of your fellow practitioners, while you attend diligently to the duties of your vocation.

The Valedictorian of the class, Mr. Langdon, then addressed the Faculty and the students thus:

HONORABLE THE DEAN, MEMBERS OF THE FACULTY, AND FELLOW-STUDENTS.

GENTLEMEN: I thank you for the privilege and honor extended to me in giving me the opportunity to act as spokesman in delivering the farewell address to the Faculty for the class of '97.

I regret that the exigencies of the case have prevented me from preparing a more elaborate address for the occasion for extemporaneous delivery, but the preparation for the final examinations in a college whose curriculum has undoubtedly the widest range of any similar school in this country, embracing as it does fifteen subjects upon which the student must pass before receiving his degree, leaves, I assure you, but little time, and very much less energy in the individual of ordinary abilities, to commit an address to memory.

It has seemed to me that when a few sincere words of justified appreciation, where such appreciation is due, and the assurance of mutual good-fellowship, and a desire for continued advancement along the lines marked out for us by an honored and faithful Faculty, are all that could be required of me at this time.

We are as students particularly favored by the cosmopolitan character of this city, the home of our alma mater. This characteristic is well reflected in the composition of our classes, which literally include men from New Hampshire to California. Such a condition is perfectly natural, growing as it does out of the numerous and varied educational advantages afforded by the museums and other public institutions, as well as by the residence in the city of those thoroughly skilled in the various branches of learning and science here represented. Boston for years was considered the hotbed of education, in fact was conceded to hold the palm as the principal seat of learning in America. New York has been her rival for years, but Washington, with the characteristic precocity of all things American, seems to have wrested this honor from all competitors at one grasp. It is, then, our duty, and will be our pleasure in so far as this institution forms a part of a great and unique whole, to maintain this eminence, and add if possible new laurels to her fame.

And what, indeed, will be our excuse if we fail utterly in this, our obvious duty? The indomitable will, energy, discernment, and faith of our Dean have secured for us, if you will pardon the directness and flatness of the assertion, the flower of the profession in each particular branch included in our course—the elder men of worldwide reputation, and the younger proportionately known and appreciated, and as all our class believes, particularly gifted with the talent most useful to the world, and consequently most desirable—the ability to impart knowledge.

The institution, though young in years, is, aside from the great advantage of a competent corps of professors, equipped with the necessary appliances for practising the precepts poured out to us by our instructors, and thus if we do not leave our alma mater well supplied for our journey, it is not through any lack of depth in the well or any lack of size or force in the stream, but, on the other hand, through the shallowness of the receptacle into which it flows, and if the same honor is not in the time to come attached to the degree of this, as to that of any other school in the land, we have no one to blame but ourselves. *Ad astra per aspera,* literally "to the stars through asperity," or in the very free translation, or rather paraphrase, of Emerson, "Hitch your wagon to a star."

Honored preceptors and instructors, we bid you farewell, begging you to accept our hand of friendship and appreciation, with the assurance that your labors in our behalf shall not be in vain and shall not go unrewarded, and that it will be our aim to do our part in the upbuilding of the institution, to the end that not the least of your causes for self-congratulation shall be that you are professors thereof.

Fellow-students, we have passed these months together in mutual efforts toward the acquisition of knowledge and with mutual pleasure and good feeling. But we must not forget that our responsibilities only begin here. We are given the material for the foundation of an honorable position in our chosen calling, and in which there are ample opportunities of raising the standard of excellence, and of raising our standing in the world at large. There is no reason why we should not be on a level with all other learned professions, for to have success here are required as much learning, as much skill, and infinitely more observation and intuition than in human medicine, together with a knowledge of comparative medicine and surgery not absolutely necessary to the latter.

What are our means so far equipped of attaining this end? Few and simple indeed and plainly within our grasp—strict honor, absolute truth, "though not necessary to tell all we know about a thing at all times," conscientious work, which means the establishment of perfect confidence between practitioner and client.

Our course of prescribed study finished, we will not weakly and abjectly sink into a life of pure routine which precludes all advancement, but struggle not only to hold our footing, but try to make further progress; for, says an eminent philosopher of our times, "He who is silent is forgotten; he who abstains is taken at his word. He who does not advance falls back. He who stops is overwhelmed, distanced, crushed. He who ceases to grow greater, becomes smaller. He who leaves off, gives up. The stationary condition is the beginning of the end, is the dreadful symptom that precedes death." Therefore, let us on the eve of this new era in our lives, while looking into the future, full of dangers and difficulties, but with the shining goal in view, bear in our hearts the admonition so appropriately selected as the motto of our alma mater, "*Vestigia Nulla Retrorsum.*"

Prof. George A. Prevost then, on behalf of the trustees, made a few exceedingly felicitous remarks which were received with applause.

The second-year examinations were passed by Messrs. M. S. Lantz, Samuel Gelson, George N. Brady, Benjamin Gheen.

Mr. Arthur Currier took the prize for the best general examination in the first-year class.

The degree of Fellowship (F.U.S.C.V.S.) was conferred upon D. S. Lamb, A.M., M.D., of Washington, D. C., and C. H. Ford, D.V.S., of New Orleans, La.

The conditions under which this degree is granted may be more fully understood by reference to the catalogue and prospectus of the College.

In this instance it was conferred owing to scientific contributions from the candidates.

CHICAGO VETERINARY COLLEGE.

On Wednesday, March 24th, the students and the graduating class of 1896–'97 were given a banquet by the faculty at the Sherman House. Justice having been done to the good things set before the participants, speeches and toasts emphasizing the good feeling existing between the faculty and class were indulged in, and at a late hour the banquet hall was vacated, a most delightful evening having been spent. On Thursday, March 25th, the commencement exercises were held in the college auditorium, the large hall being specially decorated for the occasion. The audience, consisting of the friends of the faculty and graduating class, thronged the lecture-room, filling it to its utmost capacity. The class colors—purple and white—were conspicuously worn by the majority of those present. The proceedings opened by instrumental music by the Lawndale quartette. On the platform were grouped all the members of the faculty, the chair being occupied by Dr. Joseph Hughes, who, in his opening remarks, briefly related the history of the school, and highly complimented the graduating class on the splendid showing made by them, of the twenty-two graduates thirteen having passed with honors, of which the following is a list according to their standing: Drs. M. J. Dunleavy, J. H. Oliphant, G. P. Frost, F. W. Benteen, Jr., F. L. Cusack, E. T. Frank, George Fry, James Smellie, C. A. Bradley, V. A. Holden, H. J. Schneider, W. F. Fish, and T. J. Menestrina.

Special congratulations were tendered to Dr. M. J. Dunleavy, who obtained the gold medal for the highest general average; to Dr. J. H. Oliphant, who obtained first prizes in the theory and practice of chemistry; and to Dr. George P. Frost, who obtained the prize in anatomy. Having made this announcement, the chairman conferred the degree, M.D.C. (Doctor of Comparative Medicine), and delivered diplomas to the following members of the graduating class: J. H. Oliphant, Macon, Ga.; William Sonerol, Ludington, Mich.; A. M. Taylor, Chicago, Ill.; L. D. Brown, Hamilton, Mo.; F. L. Cusack, Milwaukee, Wis.; E. T. Frank, Warren, Minn ; T. J. Menestrina, St. Louis, Mo.; C. F. Gruner, Chicago, Ill.; James O'Donnell, Milwaukee, Wis.; C. A. Bradley, Wyoming, Ia.; W. H. Scruby, St. Cloud, Minn.; James Smellie, Chicago, Ill.; F. W. Benteen, Jr., Atlanta, Ga.; F. A. Ramsey, Encinitas, Cal.; M. J. Dunleavy, Denver, Col.; H. J. Schneider, Milwaukee, Wis.; W. J. Martin, Kankakee, Ill.; L. W. Young, Chicago, Ill.; G. P. Frost, Dublin, Ireland; George Fry, Naperville, Ill.; W. F. Fish, Chicago, Ill.; V. A. Holden, Sparta, Wis.

When the members of the class had resumed their seats, Dr. E. T. Frank gave a reading, "The Horse's Troublous Life," which was well received. Dr. M. H. Trumbower, in well-chosen and humorous remarks, then distributed the prizes, many beautiful floral tributes being sent by friends of the young veterinarians. A vocal duet and piano solo were then followed by the class prophecy, the prophet being Dr. M. J. Dunleavy, who, in an exceedingly clever and witty production, held up the little peculiarities of his various fellow-students and produced much merriment by his predictions. The valedictory address was a master effort, and was delivered by Dr. L. W. Young, who, during its delivery, on many occasions received the plaudits of the audience. Dr. A. S. Alexander, being absent owing to illness, Dr. J. F. Ryan delivered the doctorate address, and was followed by Dr. A. H. Baker, who gave some healthy advice to the young graduates.

AMERICAN VETERINARY COLLEGE.

The annual meeting of the Alumni Association of the American Veterinary College was held in the College Hall at 3 P.M., March 25, 1897. Among those present were: Drs. W. H. Lowe, H. D. Hanson, F. R. Hanson, W. B. E. Miller, W. H. Pendry, L. H. Howard, W. Horace Hoskins, Herbert Neher, Otto Faust, C. L. Adams, H. W. Bieser, A. H. Blake, W. J. Coates, E. F. Hogan, E. H. Ackerman, M. W. Drake, M. J. Murphy, R. W. Ellis, L. D. Ives, E. N. Leavy, E. L. Volgenau, F. R. Ogden, Hermann Koch, W. C. Brotherton, and Prof. Olof Schwarzkopf, of Chicago, Ill.

After the reading and adoption of the minutes of the meeting of 1896 the Executive Committee made their report, showing provision for the annual dinner and alumni prize and the consideration of the necessary alterations of the constitution and by-laws, among others a recommendation to establish a list of those members of the Association not in good standing who declined to pay the annual fee of $1. The election of officers resulted in the selection of Dr. L. H. Howard, President; H. D. Hanson, First Vice-President;

R. W. Ellis, Second Vice-President; Otto Faust, Secretary; F. R. Hanson, Treasurer; Herman Bieser, Librarian. The deaths reported were of Drs. Autenreith, Peralta, Leich, and Southwick, and committees were appointed by the Chair to draw up suitable resolutions in recognition of their death and the loss to the Association.

President Howard's address was carefully prepared and added much to the history of the A. V. C. boys as supporters and earnest workers in the upholding and advancement of the veterinary profession. He referred to the many positions held by them of an official character, and of the thoroughness with which much of the work of the profession was done by members of our Alumni Association. The meeting adjourned at a late hour with a cordial invitation to all the members of the Association to attend the commencement exercises, which were held in Chickering Hall at 8 P.M.

The following programme covered the exercises:

Overture, "Gallathea," (Suppe.) Selection, "Geisha," (Jones.) March, "Valerose," (Wittig.) Prayer, Rev. Adolphus T. Sieker. Intermezzo, "Naila," (Delibes.) Conferring of Degrees, Faneuil D. Weisse, M.D., President Board of Trustees. Selection, "Lady Slavey," (Kerker.) Awarding of Prizes, Prof. L. H. Friedburg, Ph.D. Waltz, "Life's Lullaby," (Bucalossi.) Valedictory, George Bass Blackman, D.V.S., of the graduating class. Selection, "Popular Airs," (Beyer.) Address, Rev. Lindsey Parker, D.D. Benediction, Rev. Adolphus T. Sieker. March, "El Capitan," (Sousa.)

The following students received the Degree of Doctor of Veterinary Surgery: George Bass Blackman, Harry Wentworth Bellman, Jr., George De Witt Boice, Horace Winfield Boyd, Arthur Launy Grover, Bernard Gunther, Howard Suydam Holdenby, James Grant Hope, M.D.C., Ralph Collyer Jenks, John Victor Laddey, Otto Rudolph Leis, James Edward Masterson, John Phillip Messer, John Joseph Murray, Thomas John Ogle, John Gregory Slee, Harry Balthasar Shugar, Thomas Francis Smith, George Stephens, Franklin Smith, C. Chauncey Tietjens, John Thomas, George Frederick Westcott.

Rev. Lindsay Parker delivered the address, and it was one of the most appropriate, interesting, and humorous extemporaneous addresses ever given to a fully appreciative audience. It was interspersed with wholesome advice, and many brilliant thoughts flashed rapidly from the speaker, which fell upon willing ears and minds to grasp and utilize the same.

The valedictory by George Bass Blackman was a thoughtfully prepared one, giving an adequate idea of the work of the veterinarian; and his remarks to the faculty were happily made, with a thorough appreciation of the sincere efforts of their labors and in their behalf. His parting words to his fellow-graduates, while fully appreciating and willingly accepting the responsibilities that must fall to their lot, were hopeful in that the outgoing class might shed as much honor and lustre over their alma mater as those which had preceded them. The music was of a varied character, very enjoyable, and added much to the pleasure of the occasion.

At the close of the exercises the Faculty, trustees, and graduates repaired to the Hotel Marlborough, where was arranged a series of decorated tables, around which groups of those attending spread themselves, and enjoyed, until an early hour of the morning, the wealth of good things provided to satisfy the inner man, and listened to many suggestive and pointed remarks from members of the trustees, faculty, and graduates, drawn forth by the persuasive powers of the toastmaster, Dr. William H. Lowe. Among those who responded to the toasts were Dr. F. D. Weisse, of the Board of Trustees; Professors Robertson, Coates, and Hanson, of the Faculty; many of the older graduates and member of the graduating class, including the class historian, thus fittingly closing the twenty-second annual reunion of the Alumni Association.

SELECTIONS.

THE SERUM DIAGNOSIS OF HOG-CHOLERA.[1]

By Charles F. Dawson, M.D., D.V.S.,
BUREAU OF ANIMAL INDUSTRY, WASHINGTON, D. C.

In July, 1896, Widal[2] described a method which he had recently discovered for diagnosticating with ease and certainty the existence of typhoid fever.

The importance of such a discovery is apparent, since by this means physicians can ascertain the existence of this disease with comparative ease. The method is as follows:

A bouillon culture of the typhoid bacillus is examined microscopically to determine the motility and isolation of the individual bacteria. A few drops of the culture are placed in a watch-glass and with this is mixed a drop of blood drawn from the finger-tip of the patient. Hanging-drop preparations are then made from the mixture of culture and blood. A most interesting series of phenomena presents itself. The bacilli are not isolated and moving as they do in ordinary cultures, but lose their motility and become agglutinated and joined together in masses which are separated by wide spaces. The clear spaces are dotted with less motile bacilli, and these can be seen approaching the masses and finally adhering to them. Widal observed these phenomena in preparations made from patients in different stages of the disease. They did not appear in preparations made from the blood of persons in health, and he argues therefrom the reliability of the test. Nor did the phenomena appear in preparations made from patients suffering with other diseases—such as nephritis, tuberculosis, pneumonia, icterus, and rheumatism; but the bacilli remained motile, and exhibited no tendency to become non-motile and massed together in clumps.

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[1] Reprinted from the New York Medical Journal of February 20, 1897.

[2] La Presse Médicale, July 29, 1896.

These very interesting results determined the writer to apply the test in hog-cholera, a disease resembling typhoid fever in many respects. In these observations, which are preliminary to a more extended investigation of the subject, hog-cholera was induced in a rabbit by the subcutaneous injection of a bouillon culture.

On the fifth day after inoculation a small piece of the ear of the rabbit was excised and clean cover-glasses were smeared with the small amount of blood which oozed from the wound. No attempt was made to prevent the drying of the preparations, and the result obtained would indicate that evaporation of the liquid portion of the blood does not prevent the appearance of the characteristic phenomena. When the preparations were perfectly dry a drop of bouillon culture of the hog-cholera bacillus was placed upon the stratum of dried blood on the cover-glass, which was then inverted over a hollow-ground slide and examined carefully with a Zeiss two-millimetre apochromatic immersion lens combined with a No. 4 ocular. By the time the slide was prepared and focussed the bacilli, which had been previously observed to be motile in a control preparation, became motionless and agglutinated in clumps, exactly as was described by Widal in reference to the typhoid bacilli. A control experiment was made with the blood from a normal rabbit, with the result that the hog-cholera bacilli did not exhibit the slightest tendency to be affected in any way. Similar experiments wêre made to determine the effect of hog-cholera blood-serum upon the typhoid fever bacillus and the *Bacillus coli com-*

munis. The results were negative. The absence of any effect of the hog-cholera serum upon the typhoid bacillus and also upon the *Bacillus coli communis* is of interest on account of the resemblance of these three organisms in other ways.

Owing to the obscurity of the symptoms usually presented in hog-cholera, it would seem that a method which would render a correct diagnosis would be of considerable value, it being by no means an easy task to diagnosticate hog-cholera from the physical symptoms alone. As it is possible that a cure or preventive of hog-cholera based upon antitoxic-serum therapy will be discovered, it would be of great advantage to have a method for detecting the existence of the disease in its incipiency.

While the experiments upon rabbits are not offered as positive evidence that the same results could be obtained from affected hogs, it is reasonable to assume that a similar result is within the range of probability.

PERSONAL.

Drs. John W. Adams, of Philadelphia; H. P. Eves, of Wilmington, Del.; and W. Horace Hoskins, of Philadelphia, will act as veterinary inspectors at the coming Philadelphia horse-show.

Dr. Charles Williams, of Philadelphia, was fined twenty dollars cash and costs by the authorities of Montgomery County for docking the tails of a pair of ponies.

Dr. Harry Walters, of Wilkesbarre, is lecturing on veterinary dentistry at the Veterinary Department of the University of Pennsylvania.

Dr. Herbert Neher recently addressed the New York Microscopical Society on fatty or adipose tissue.

Prof. A. Liautard sailed for Europe February 8th, to join his wife and daughter.

Prof. Schwarzkopf, of Chicago, has located at Flushing, L. I., succeeding to the practice of the late Dr. W. T. Simmons.

Dr. James A. Marshall, of Philadelphia, has been elected President of the Belmont Driving Club.

Dr. Herbert Neher, of New York City, has been elected professor of clinical medicine of the American Veterinary College by the Board of Trustees.

Dr. H. T. George has succeeded as meat-inspector for Camden, N. J., Dr. W. B. E. Miller, who has held the position for several years at stated intervals.

Prof. A. H. Baker, of the Chicago Veterinary College, was one of the speakers at the Cook County (Ill.) Farmers' Institute.

Dr. Edward P. Dowd, of the Bureau of Animal Industry, has been transferred from Philadelphia to Boston, Mass.

Dr. E. H. Shepard, of Cleveland, Ohio, is now recovering from a long and serious illness.

Dr. C. H. Doepel, recently assistant to Dr. E. B. Ackerman, has changed his vocation and joined his father in the meat business.

Dr. William Kaul, of St. Mary's, Pa., is associated with his father in the Elk Stock Farm.

Dr. Charles Schaufler, of Philadelphia, holds the important position of assistant general manager of the Union Traction Company.

Drs. E. C. Switzer and F. G. Scannell, former students of the United States Veterinary College, finished their course at the Veterinary Department of the Columbian University.

One of the graduating class of the American Veterinary College was a graduate of the Chicago Veterinary College.

Dr. A. W. Clement, of Baltimore, has been selected veterinarian to the Elkridge Fox-hunting Club Show.

Dr. Charles Lovejoy, of Princeton, Ill., has been appointed State Veterinarian by Governor Tanner, to succeed Dr. M. R. Trumbower. Dr. Lovejoy is not a graduate of any veterinary college.

Assistant Secretary of Agriculture, Dr. Charles Dabney, has been placed in charge of all the scientific work of the Department of Agriculture.

Veterinarians Olof Schwarzkopf and F. T. McMahon are enthusiastic members of the Chicago Equestrian Club.

Dr. M. J. Dunn, of Detroit, is President of the Michigan State Protective Horseshoers' Union.

Dr. Charles Bridge, of Philadelphia, met with a serious accident by falling from a trolley car, sustaining a concussion of the brain.

President McKinley has recently provided himself with a Kentucky saddle-gaited horse. Mayor Harrison, of Chicago, will follow his father's footsteps as Mayor in ranging over the municipal domains of his city on a gaited saddle-horse.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

REPORT OF THE COMMITTEE ON SANITARY SCIENCE AND POLICE.[1]

MR. PRESIDENT AND GENTLEMEN: As chairman of the Committee on Sanitary Science and Police I beg to submit to you the following report of the infectious diseases of animals as they have come under my observation during the past year and to make some statements in reference to the work of the State Live-stock Sanitary Board. The State Live-stock Sanitary Board has at this time been in operation for approximately one year. The State Veterinarian was appointed on January 1, 1896, and the Board was organized and its rules and methods were formulated shortly thereafter. It was not, however, until about this time last year that active work could be undertaken, so that my present report relates chiefly to observations that have been made since our last annual meeting.

The extent of the work that has been done during the past year and the rapidity with which it has grown indicate the manner in which the operations of the State Live-stock Sanitary Board have been accepted by the owners of animals and by the veterinary profession.

Inspections have been made in nearly every county of the State; in some counties they have been very numerous. It is gratifying to note that applications for assistance from the owners of animals afflicted with contagious diseases, particularly tuberculosis, are most numerous and are increasing in number most rapidly from those sections in which the most work has already been done.

A large number of diseases have been brought to the attention of the Live-stock Sanitary Board, among which I wish to mention the following as being of special interest and importance.

Cornstalk disease is an affection which has prevailed extensively in the corn-growing districts of the West, and particularly in Iowa, Nebraska, and Kansas, for a number of years, but very few outbreaks have been reported from the Eastern States, and so far as I know the disease has not been recognized in Pennsylvania until the present season. During the past few months several outbreaks of disease among cattle have been reported and investigated that were characterized by the following features: excitability, abdominal pain, disinclination to move, constipation, weakness, paralysis, and death. In every instance thus far it has been possible to determine that cattle thus afflicted were fed on cornstalks that were in a mouldy condition. In one outbreak that I looked into recently in Lebanon County it was found that six cattle had died. During the day they were kept in a yard that was littered with corn-fodder from a stack in an adjoining field. The fodder was very mouldy, and the stalks were thickly coated with a grayish mould near the base of the leaf. The yard was cleaned up and the use of this fodder discontinued, since which time there has been no recurrence of the disease.

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[1] Read before the annual meeting at Philadelphia, March 2, 1897.

This disease has been the object of a special investigation conducted under the auspices of the United States Bureau of Animal Industry, but it has not yet been determined whether it is due to the infection of the animal by a fungus or bacterium that exists in the corn-fodder, or whether the disease is a toxæmia resulting from the ingestion of the chemical substances produced by the organisms that multiply in corn-fodder under certain conditions.

Dr. Edwin Hogg, of Kirkwood, Lancaster County, successfully treated six cows afflicted with this disease, while an equal number in the same herd died. His treatment consisted in administering Glauber's salt and the use of atropine subcutaneously. The paralyzed animals were raised in slings twice a day and kept up for a short period each time.

Post-mortem examination of animals dead of cornstalk disease usually reveals a negative condition. Sometimes there is an effusion of serum in the connective tissue about the kidneys, and the lungs may be somewhat congested or œdematous. The fact that the lesions are so slight tends to support the view that the disease is a poisoning due to the ingestion of the substances mentioned.

Abortion of cows is a disease that has occasioned great losses in many parts of the State, and particularly in the dairy districts. Many cases have been reported in which it recurs in herds from year to year, so that the profit from the herd is entirely destroyed, and in some instances the losses that result from this cause are ruinous. The disinfection of the premises and the disinfection of the genital passages and organs of the cows usually result in at least an amelioration of the condition. The subcutaneous injection of a weak solution of carbolic acid is also highly recommended by some who have tried it, and my own experience with this method of treatment has encouraged me somewhat. As yet it is not possible to explain how carbolic acid administered in this way and in such small quantities could have a beneficial action, but Dr. M. E. Conard, of West Grove, who has used it in a number of outbreaks, has great faith in its efficacy.

The cause of abortion is still undetermined, and this should be a fruitful field for investigation. So long as the cause of the disease remains unknown all measures directed against it are like fighting an enemy in ambush, but as soon as the cause is discovered and its characteristics are made known the sanitarian has decidedly the best of the contest.

Hog-cholera has prevailed extensively all over the United States during the past season. It is estimated that the loss in Iowa resulting from this disease alone has amounted to more than $10,000,000 during the past twelve months, and while other States have not suffered so excessively they have likewise lost extensively. Most of the outbreaks that have appeared in Pennsylvania have occurred as the result of the introduction of Western hogs for fattening. Stock-hogs from the stock-yards in Chicago and Buffalo have nearly all of them been exposed to hog-cholera, because the disease has prevailed to such an alarming extent that it is scarcely possible for a susceptible animal to pass through a stock-yard or to be shipped in undisinfected stock-cars without being exposed to the contagion of this affection. When once introduced into a farming district in this way hog-cholera is spread by the interchange of animals or objects that have been in contact with them. In some instances the spread of the disease has been hindered or prevented by quarantining infected herds and confining them strictly to the premises of their owners. Some of the outbreaks that have occurred during the past season have been characterized by the extreme rapidity with which they have spread and destroyed their victims.

In my last annual report, for the year 1896, I stated that the total losses from this cause would probably amount to $350,000. Subsequent observation and correspondence have convinced me that my estimate was too low, and that the losses amount to at least five or six hundred thousand dollars.

Since the work of the Live-stock Sanitary Board is wholly new and in a condition of development, active measures relating to the control of this disease have not been undertaken with the exception of quarantining some of the infected herds, and in that way protecting swine of the immediate vicinity, and the distribution of a bulletin entitled *Hog-cholera and Swine-plague,* issued by the Bureau of Animal Industry. It is hoped that more effective measures can be devised and inaugurated before long.

Osteoporosis has prevailed to an alarming extent, or at least a large number of cases have been brought to my attention, during the past year. It may be, however, that the increase is more apparent than real, but it is evident that a large number of horses are incapacitated from this cause, and a number of vague and indefinite lamenesses result from this disease. The cause of osteoporosis is still undetermined, and until we have more information on this point all attempts to cure or prevent the disease will be purely empirical and probably to a large extent unsuccessful.

Glanders has not prevailed extensively. It may be, however, that since the dangers of this disease are so thoroughly understood only a portion of the cases that are dealt with by veterinarians and local authorities are reported to the Live-stock Sanitary Board. During the past year twenty-six horses with glanders were destroyed.

It has been shown beyond doubt during the past season that many of the outbreaks reported as anthrax are beyond doubt red water, and it seems probable that there is not nearly as much anthrax in this State as was formerly supposed. However, the genuine disease has appeared in Pennsylvania, and the State Live-stock Sanitary Board will have prepared and ready for use some vaccine to be employed in preventing this disease whenever it is necessary to use it.

The investigation of rabies, made under the direction of the State Live-stock Sanitary Board, has included visits to and inspections in the districts in which the disease has appeared, the tracing of animals reported as rabid and animals bitten by them, the inoculation of rabbits from the brains of dogs and other animals reported as rabid, and the quarantining and destruction of dogs and cattle in the acute stage of rabies and when they have been bitten by a dog that was undoubtedly afflicted with this disease. These investigations have demonstrated conclusively that rabies actually exists, and during the past season to quite an alarming extent, among the domestic animals of the State. It has been remarked that some outbreaks of the disease are of an excessively virulent and others of a comparatively mild nature—that is, some dogs produce rabies in nearly every animal bitten by them, while others produce rabies in a comparatively small proportion of the animals bitten, and sometimes the disease appears in the paralytic or dumb form. Variations in the strength of the virus of this disease have been studied for a long time, and have been produced artificially in laboratories, and it has been observed that under certain conditions the disease becomes progressively milder until finally the virus loses its virulence to such a degree that it will not produce the characteristic symptoms of this disease, but by passing this attenuated virus through an animal of different species its virulence can be restored, and it has been suggested that rabies of dogs always has a tendency to become milder with each succeeding generation, and unless another animal, a cat, for instance, is bitten and in turn bites a dog, thus propagating the disease, it will in time become practically harmless. There are some places in this State where rabies is stationary and cases among dogs are of frequent occurrence, but of such a mild type as to cause but little apprehension. But occasionally a dog in the furious stages of the disease will appear and bite animals or people and cause much alarm in a large territory, and a number of cases of rabies often follow a raid of this sort. While all undue excitement should be avoided, it appears that there is no good purpose to be accomplished by hiding the facts connected with this disease, but it should be explained fully and freely that the existence of rabies constitutes a serious menace to communities in which it exists, but that all dogs that have fits, become excited, or bite, are not mad, and that rabies is a comparatively rare disease, the diagnosis of which is attended by some difficulty.

The greatest attention has been devoted during the past year to the subject of tuberculosis of cattle. The question as to how to deal with this disease in the most profitable and satisfactory manner has been a difficult one to solve, and it has received the earnest consideration of the State Live-stock Sanitary Board. A great number of possible methods have presented themselves and have been suggested, but most of them have been rejected on account of obstacles that are not surmountable at this time. The plan that is pursued at present is to examine herds wherever and whenever examinations are applied for, but only upon receipt of a formal application which contains an agreement upon the part of the owner to do all in his power to prevent the reintroduction or development of tuberculosis in his herd, and to observe the precautions and measures recommended by the State Live-stock Sanitary Board for this purpose. Upon the receipt of an application of this kind a tuberculin-test of the entire herd is ordered, and the animals that prove to be tuberculous are appraised and destroyed, although an alternative has been provided in accordance with the following rules: When herds are examined and tested at the request of the owner: (*a*) Cattle that present physical symptoms of tuberculosis must be destroyed, after an arrangement as to their value has been made that it is satisfactory to an authorized representative of the State Live-stock Sanitary Board and to the owner or his agent, or after the cattle have been regularly appraised. (*b*) Cattle that respond to the tuberculin-test, but do not present physical symptoms of tuberculosis, and in particular, have healthy udders, may be kept by their owners, subject to the following conditions: 1. The tuberculous cattle shall be marked with a suitable tag in the ear, or otherwise, and quarantined on certain defined premises. These cattle shall be kept apart from other cattle and in buildings and enclosures in which other cattle are not kept and are never allowed to go. Or, if it is impracticable to provide a separate building for the tuberculous cattle, they may be kept in a building in which other cattle are stabled; provided, they are separated from other cattle by a tight partition, the construction of which is satisfactory to a representative of this Board, which divides the building into two entirely distinct apartments with separate doors, separate accommodations for feeding and watering, and separate yards. 2. The calves from these quarantined cows may be raised, provided that they shall, immediately after birth, be removed from the premises in which tuberculous cattle are kept, and that they shall not be allowed to drink any of the milk from their dams or other quarantined cows, except after boiling or heating to 185° F. 3. The milk from cows so quarantined shall be used for no purpose whatever, except after it has been boiled or heated to 185° F. 4. Cattle quarantined as above may be slaughtered for beef; provided, that they shall be inspected at the time of slaughter by a competent inspector approved by this Board, and the flesh must be destroyed or may be sold for food, according to the judgment of such inspector; and provided further, that when this alternative is selected it shall be in lieu of indemnity from the State Live-stock Sanitary Board, and all claim for indemnity is thereby forfeited, except for such animals as are condemned by the meat-inspector, in which case the appraised value shall be paid. (*c*) If the owner of cattle that have responded to tuberculin-tests elects to accept the indemnity provided by the law, and so informs the authorized representative of the State Live-stock Sanitary Board, such cattle will be appraised, destroyed, and examined post mortem under the direction of a representative of the Board.

This arrangement has been made for the purpose of accommodating the owners of animals who do not wish to have them appraised and destroyed immediately after they are tested and found to be afflicted with tuberculosis. The conditions are such that it is not possible for tuberculosis to be spread by cattle kept in accordance with them, and, although they may not permit of the convenient utilization of tuberculous cows, it does not at this time seem possible to moderate them in any degree without endangering the live-stock interests.

One great difficulty that has confronted the Board in its work has been in relation to supplying a source to which farmers can go for cattle that they may be sure are free from tuberculosis, for the purpose of restocking herds from which tuberculous cattle have been removed. Cattle-buyers are recommended to purchase no cattle that they have not good reason to believe are free from tuberculosis, and since one cannot ascertain this point satisfactorily without the tuberculin-test, in these cases in which it is not possible to visit the herds from whence the cattle that are offered for sale come, and since it is not practicable to insist on a certificate of health based upon the application of the tuberculin-test in all cases, it has not always been possible for farmers to buy cows that they should be sure about. It has been suggested that this difficulty can be overcome by providing that all cattle coming into Pennsylvania from other States shall only be admitted upon presentation of evidence that they are entirely free from tuberculosis, and a bill has been introduced before the present Legislature that will establish this requirement. This will make it possible for farmers to purchase cattle that they can be sure about, and will be a long step in advance of our present position, and at the same time will not add to the expense that the State is already put to. About six thousand cattle have been tested with tuberculin under the direction of the State Live-stock Sanitary Board, and of these about one-fourth have been condemned; but, of course, this does not represent the actual percentage of tuberculosis among the cattle of our State, because inspections have only been made in herds that were supposed to be infected. However, many of those herds that were supposed to be infected have proved entirely free from tuberculosis. The percentage of tuberculosis in herds has varied from 1 to 100 per cent., and week before last a herd comprising about 175 was found to be tuberculous to the extent of 95 per cent. It has become perfectly evident that the percentage of tuberculosis in the herd depends principally upon the length of time that the infection has existed. In old cases of infection, particularly in breeding herds, the entire stock is sometimes saturated with the disease; whereas, if the infection is recent a comparatively small number of animals are found to be afflicted, perhaps not more than one or two. The sanitary conditions also determine to some extent the rapidity with which tuberculosis spreads in a herd. Notwithstanding the general views in regard to this point and my own preconceived opinions upon it, I have not been able to demonstrate to my own satisfaction just what influences are most favorable or most unfavorable for the rapid transmission of this disease. It is quite easy to deduce inferences on this subject based upon our knowledge of the disease, the vitality of the tubercle bacillus, etc. While these inferences may seem to be supported in some isolated cases, the careful observer will find many illustrations of exceptions to what he has supposed should be the rule. For example, tuberculosis has been known to spread with great rapidity among animals kept in well-ventilated stables and stables that were well lighted, and even out of doors, while the cattle were at pasture. Some observations made in Iowa and some made in Scotland show that tuberculosis can spread extensively in herds that are never stabled.

Since it has been shown conclusively that heredity has but little part in the transmission of tuberculosis, there has been a general tendency among writers on this subject to dwell upon the importance of the inherited predisposition to the disease. But the very careful and extensive work conducted in Denmark by Prof. Bang seems to show that after all this is a matter of minor consequence, and general observation indicates that contagion, actual exposure to cattle afflicted with tuberculosis is the thing that is the most important to guard against, and if this is guarded against thoroughly the most important precaution has been taken.

It is, however, exceedingly important that one should know the exact value of good sanitary conditions, and what sanitary arrangements are best adapted to prevent the rapid spread of tuberculosis in a herd. A great many diverse opinions prevail on this subject, and a great many cheap views on it are aired from time to time in the public prints, but there is a great lack of accurate information and demonstrated facts that would be of great value and should be supplied. The State Live-stock Sanitary Board has realized the need of further knowledge in reference to many of the diseases of animals, and has instituted a laboratory at the Veterinary Department of the University of Pennsylvania, wherein investigations can be made and where tuberculin, mallein, anthrax vaccine, and black-leg vaccine are prepared. Several investigations are now under way, and it is earnestly hoped that the facilities for this work can be increased in proportion to its importance, so that more of the many vague and perplexing questions that beset the veterinarian may be studied and more effective means for the prevention and cure of diseases among animals may be developed.

I wish to thank the veterinarians of this State for their indispensable and ever-ready assistance whenever they were called upon to aid in the work of the Live-Stock Sanitary Board; the kind and willing manner in which they have responded to all calls made upon them has been exceedingly gratifying, and without it the results attained would have been impossible.

The fact that the live-stock industry of Pennsylvania represents approximately $125,000,000, and suffers losses approximating $6,000,000, as a result of diseases that are probably preventable, indicates the importance of the work that is going on under the direction of the State Live-stock Board.

This work will unquestionably grow in importance and extent, and that it may grow in such a way as to yield the greatest return for the money expended it is to be hoped that provision can be made for more extensive researches that will lead to a better understanding of the best means for the suppression of these numerous diseases, and this can only be learned by a more careful study of their causes, their exact methods of transmission, the conditions that are favorable and unfavorable to them, etc.

LEONARD PEARSON, V.M.D.,
Chairman.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

THE thirteenth annual meeting was held at the Continental Hotel, Newark, N. J., on April 8, 1897. Meeting called to order at 11.30 A.M., President Hawk in the chair. There were but fifteen members present. After the roll-call, the minutes of the previous regular meeting were read and approved, also the minutes of a special meeting held on December 22, 1896.

The Secretary's report showed a steady growth in numbers, and the Treasurer's report a rapid increase financially. There was but one applicant for membership present—Dr. F. A. Zucker, of Elizabeth—who was unanimously elected after being examined by the Board of Censors.

The election of officers resulted in the unanimous election of President, Dr. W. H. Arrowsmith; First Vice-President, Dr. R. C. Vail; Second Vice-President, Dr. W. Runge; Secretary, Dr. S. Lockwood; Treasurer, Dr. B. F. King; Trustees, Drs. W. Runge, J. W. Hawk, A. W. Oxford, W. Gall, and B. F. King, all being elected for two years.

The essayists being absent, Dr. Arrowsmith gave a description of an operation which he had performed—a laryngotomy for the removal of an osseous growth, which caused roaring, and he exhibited the electric lamp and instruments used. The operation was performed at his hospital in Jersey City, and was successful.

The President, in his address to the Association, emphasized the necessity of each member trying to improve the meetings by being more prompt at the time appointed, reporting interesting cases, inviting others of the profession to join the Association, and, when the Association is trying to get new laws passed, not to leave all the work for the committee, but each one see the member from his district and explain the need of such a measure; then when he sees the bill he will take an interest in it. Adjourned at 1.15 for dinner.

Reconvened at 2.45 o'clock. Dr. Dustan, chairman of the Legislative Committee, made a report of the work of the committee and of the defeat of the bill, after going to third reading in the House. The bill was the same as the New York and Pennsylvania bills providing for a State Board of Veterinary Examiners. The report was accepted and the committee discharged. The Secretary read a letter from the Pasteur Monument Committee. Dr. Vail told of the action taken by the Pennsylvania Association, and moved that we give a like amount; motion lost. Moved and carried to pass a subscription paper, and let each contribute what sum he desired. The Secretary was instructed to write each member who was not present, giving all an opportunity to contribute.

The President appointed as delegates to the New York State and County Associations Drs. W. Runge, R. C. Vail, and J. W. Hawk; to the Pennsylvania Association Drs. F. A. Zucker, J. C. Dustan, and William Gall; essayists for next meeting, Drs. William Gall, W. Runge, A. D. Edwards, and B. F. King.

Moved and carried to meet at Trenton in October. Adjourned at 5 P.M.

S. LOCKWOOD,
Secretary.

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA

THE thirteenth meeting was held at Elks' Hall, March 27, 1897, at 8 P.M. All the leading veterinarians of the district were present. The minutes of the previous meeting were read and approved. One new member was elected.

The President appointed a Legislative Committee. consisting of Drs. Turner, Buckingham, and Pearson, to look after the interests of the bill to regulate the practice of veterinary medicine in the District of Columbia which failed to come up during the Fifty-fourth Congress.

The following officers were then elected for the ensuing year: President, Dr. H. Acheson; Vice-President, Dr. D. E. Buckingham; Secretary and Treasurer, Dr. J. P. Turner; Trustee, Dr. Pearson.

The Auditing Committee audited the Treasurer's account, after which several motions were approved relating to initiation fees and yearly dues.

A motion was made to call the next meeting on the last Saturday night in May, and thereafter on the last Saturday night of each alternate month. Approved.

Dr C. B. Robinson brought forward the subject of "Tuberculosis" for general discussion, paying especial attention to the use of the meat and milk of tuberculous animals, wishing this Association to take a definite position as to whether the meat or milk of any tuberculous animal, no matter how slightly diseased, should be permitted in the market. The subject brought forth a very interesting general discussion, which lasted until 11.30 P.M., when it was decided that each member should prepare a short article on the subject, quoting authorities, for the next meeting, when it is hoped a stand will be made on this very important subject.

Moved and seconded that the meeting adjourn. Approved.

J. P. TURNER,
Secretary.

CHICAGO VETERINARY SOCIETY.

THE meeting was called to order on Thursday evening, April 8th, by the President, Dr. Walker. The minutes of the previous meeting were read and approved. The President made some remarks as to the small attendance, there being only thirteen members present. He requested that the members try to attend earlier, as only ten were present at 9 o'clock, which number is not a quorum. There was no report from the Secretary or Treasurer.

The Telephone Committee did not call on the Telephone Company, owing to the fact that it had come to their knowledge that the company would not consider our application for free telephone use of the slot-machines at drug-stores to call up our own homes and offices, but that the company would consider such an application if made by the druggists. Dr. Walker, of the committee, reported that one druggist had promised to bring up the matter at the next meeting of the druggists.

There were no applications for membership and no unfinished business.

Dr. Gysel, the essayist of the evening, telephoned just previous to the meeting that, owing to the illness of his wife, which was of a serious nature, he would not be able to attend to read his paper on "Operative Treatment of Quittor."

Under new business a letter was read from Dr. John W. Foster offering his resignation to the Society, as he intended leaving Chicago to locate in Springfield, Ohio. Moved and seconded to accept his resignation.

A letter to Dr. A. H. Baker was read from Dr. D. E. Salmon, chairman of the Pasteur Monument Fund. Dr. Baker thought the letter should be considered by the Society. Moved and seconded that, as the communication was not addressed to the Society it be laid on the table, and that the same be returned to Dr. Baker with an explanatory letter.

A very amusing card was shown the members by Dr. Robertson. This card was printed, and was the business card of a would-be veterinary surgeon, who guaranteed to cure, among other affections, CRIBBIN and THISALOE. He also called himself a VETERIANIARY SURGEON. It is a good sample of some of our Western quacks.

Dr. Walker mentioned the fact that our Honorable Governor, Tanner, had appointed for State Veterinarian one Charles P. Lovejoy, of Princeton, Ill., who is a non-graduate and a strong opposer of college qualifications. This appointment was made in the face of strong personal and written opposition to the Governor by a large number of graduated veterinarians throughout the State of Illinois.

On motion, adjourned.

L. CAMPBELL,
Secretary.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

A SPECIAL meeting of the Association was held in the Library of the Faculty of Comparative Medicine, March 25th, at 5 o'clock. Owing to the illness of the President, Dr. Baker, and his consequent absence, the chair was occupied by Prof. Adami. After the Acting Secretary had read the minutes of the preceding meeting, and of the corresponding meeting of last year, the chairman addressed those present, and in concluding his remarks extended his best wishes to the graduating class, and trusted that they would maintain the well-deserved reputation of their school.

The Acting Secretary then presented the annual report, which showed the Society to be in a sound financial condition, and the Librarian made a few remarks with regard to the condition of the library.

Dr. Adami then made his report upon the essays read before the Society during the past session, the awards being as follows: The first prize was won by Mr. J. C. Parker, his essay being entitled "Artificial Impregnation;" the second prize by Mr. B. A. Sugden, "Pneumonia;" and the third prize by R. G. Matthew, "Peritonitis." In Dr. Adami's opinion the best work was brought before the Society by case-reports, and he thought it would be wise if these were in the future taken into account in awarding prizes.

The diploma of honorary fellowship was then conferred upon the following gentlemen: Messrs. Burns, Connelly, Hilliard, Killam, Moore, Matthew, Newcombe, Parker, Stevenson, Sugden, and Thayer.

Dean McEachran then addressed the meeting, urging upon the graduating members the importance of keeping up their connections with societies and subscribing to magazines, stating how, during his recent examinations of professional men in connection with government inspection, he had especially noticed the capable and up-to-date manner in which those gentlemen who maintained these relations had handled their subjects. Alumni societies, he said, which existed in New York, British Columbia, etc., were branching out from being merely headquarters for friendly gatherings to include the study of scientific subjects, and it was only at the last meeting of the McGill Alumni Society of British Columbia that they had voted fifty dollars, to be equally divided as prizes among the five faculties of McGill University; also that the Massachusetts Alumni Society of the Faculty of Comparative Medicine of McGill had voted a prize especially for the examination of horses for soundness. In an able manner he pointed out the difficulties the profession had overcome in order to reach its present position; how already Great Britain, Canada, and the United States were recognizing its importance, and how, without being a prophet or a prophet's son, he could see the day close at hand when the people of these countries, who at present, owing to ignorance, were daily poisoning their families with tuberculosis and other contagious diseases through neglecting the proper care of their domestic animals, from which their food was derived, would demand that every pound of beef, pork, or milk should have the professional stamp upon it as being fit for consumption ere it was placed on the market. As regards horses, he showed how the general drudge of the past, oftentimes a cripple, was rapidly being replaced by electrical machines, in consequence of which the horse of the future will be a valuable animal and in most cases a family pet, necessitating for his medical attendant an educated gentleman, who, like his brother in human medicine, must be capable of understanding his patient's psychic qualities. In conclusion, he expressed his best wishes for the departing students and congratulated the Society upon the useful work it was doing.

After a short address from Dr. Parker a vote of thanks to Dr. Adami was proposed and carried unanimously, after which the meeting adjourned.

B. A. SUGDEN,
Secretary-Treasurer.

VETERINARY MEDICAL SOCIETY OF HARVARD COLLEGE, CLASS OF '99.

THE regular monthly meeting was called to order by President Kennelly, of Springfield, Mass., March 25, 1897. Many subjects of importance were discussed, among which was an original essay by J. Francis Conners, on the "Luxations of the Patella."

New officers were elected as follows: President, J. Francis Conners, South Boston, Mass.; Vice-President, T. J. Coyne, Charlestown, Mass.; Treasurer, Willis A. J. Dillingham, Berwick, Maine; Secretary, J. E. Kennelly, Springfield, Mass. Board of Directors: Daniel P. O'Brien, Chairman, Chelsea, Mass.; Clifton Bowley, Lynn, Mass.; W. Lowering, Milford, N. H.; and N. C. Koons, Roxbury, Mass.

Mr. Dinsmore and Mr. Wadsworth were appointed to wait on the dean in reference to certain original investigations.

The Class of '99 has representatives of all the New England States. The regular monthly meetings will take place on the second Monday of each month.

C. Bowley,
Secretary.

VETERINARY MEDICAL SOCIETY OF THE UNIVERSITY OF PENNSYLVANIA.

The regular bimonthly meeting was held Friday evening, April 2, 1897. Meeting called to order at 8 P.M., President Klein in the chair. Twelve members answered to roll-call. Minutes of previous meeting read and approved.

Committee reported that Dr. Adams would donate the Society the Veterinary Journal for three years back, and keep us supplied with the same in the future. Committee reported that Dr. Harger would donate the Society a copy of *The Exterior of the Horse*. Receipts of the evening were two dollars and ten cents. The Committee on Library Rules reported a set of rules, which, after various amendments, were adopted and the committee discharged with thanks.

The Librarian reported that he had received agricultural reports from Pennsylvania and New York, and also some literature donated by Dr. Hoskins.

Dr. Ravenal was elected an honorary member of the Society.

Mr. Marshall, class of '97, read a very interesting paper on "Rabies." Critic Bower reported.

The programme for the next meeting was read by Mr. Shaw. The meeting adjourned at 10.15 P.M.

The regular bimonthly meeting was held on Friday evening, April 23, 1897. Meeting called to order at 8 P.M., President F. Klein in the chair. Sixteen members answered to roll-call. The minutes of the previous meeting were read and approved.

The Committee on Writing an Article for the *College Annual* reported that no medical society would be allowed to publish an article in that journal. On motion of Mr. Hernshein, the committee was discharged, with thanks. The Committee on Letters of Inquiry made a final report and was discharged, with thanks, on motion of Mr. Beatty.

On motion of Mr. Shaw the regular order of business was then suspended, and Dr. Adams was introduced, who addressed the Society on "Examination for Soundness," giving a demonstration with one of the Department horses.

On motion of Mr. White the thanks of the Society were unanimously tendered the doctor for his kindness.

Mr. Shaw, on behalf of the Executive Committee, then read several estimates for printing new society certificates. On motion of Mr. Beatty the committee was authorized to purchase a better quality of certificate than that at present in use.

Critic Zaner made a favorable report.

The Society adjourned at 11.10 P.M.

JOHN E. SPINDLER,
Secretary.

U. S. V. M. A.

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THE SPAYING OF MARES.

BY W. L. WILLIAMS, V.S.,
PROFESSOR OF SURGERY AND OBSTETRICS, NEW YORK STATE VETERINARY COLLEGE.

THE emasculation of domesticated animals, destroying their sexual power and instinct, has been freely practised for centuries, the reasons therefor varying with different species of animals, in different countries, and under diversified conditions. Most of these operations are so common that in many cases they are performed chiefly by stockowners, while others are left almost if not wholly to skilled veterinarians.

The spaying of mares has long been practised in Continental Europe, but there appears to be little modern literature upon the subject available to the American veterinarian. The earlier method of operating, which is now very rarely practised, consisted in making an incision in the flank of sufficient size to admit the operator's hand, through which the ovaries were removed. Later Charlier introduced the method of spaying the larger animals through the vagina, greatly decreasing the extent of the surgical wound, which, being protected by the vulvo-vaginal canal, rendered external influences less potent; and, added to this the more recent introduction of antiseptic and aseptic surgery, the spaying of mares has been included in the list of operations which may be undertaken by the veterinarian with every confidence in a successful issue.

In spite of the great advances in recent years in abdominal surgery, the spaying of mares has in this country been surrounded by an unwarranted fear, of such a degree that but few veterinarians attempt it, apparently believing the operation one of special difficulty and danger. As a consequence we have but few veterinarians that have spayed any considerable number of mares consecutively or in a manner which would serve as even a moderate test of the danger to the animal, or even give the surgeon the desired amount of experimental knowledge of the operation.

During my official connection as veterinarian with the Montana Agricultural Experiment Station a favorable opportunity occurred in the summer of 1896 for testing the effect of the operation on a larger scale than usual, and the experiment was consequently undertaken. Aside from the test as to the danger to the animal, and possible additional data as to the proper details of the operation, it was hoped to secure additional knowledge as to the economic value of the procedure as related to the rearing and handling of horses. Among the benefits hoped for were: First, increased docility of the animal; second, the prevention of the œstrum with the attendant nervousness, weakness, and repulsiveness; third, a safe mode of control in breeding.

As a general rule, it may be stated that emasculation of an animal increases its docility. This is more markedly true of the female than of the male. Sexual appetite being practically constant in the male, castration does not uniformly obliterate it, especially if the animal has not been emasculated until of adult age or near it; while in the female, with periodical sexual desire only, the obliteration of these periods of œstrum almost invariably destroys sexual instinct and renders the subject in the fullest sense neuter.

This end gained, we have secured the second class of benefits by doing away with the repulsive features of œstrum, avoiding at the same time the accompanying nervousness, irritability, and more or less incapacity for work.

The third incentive for the operation—that of the control or prevention of breeding—has a special application in Montana and other Rocky Mountain States, in that spaying is practically the only available method which can be employed to prevent unguarded mares from becoming pregnant not so much by valuable sires as by a low grade of mongrel horses, the progeny of which can but prove worthless. While Montana and perhaps most other Western States have laws against stallions running at large, they are quite inoperative, the ranges being constantly infested with mongrel stallions of the lowest type, so that mares are liable to impregnation at any time—this fact constituting one of the important causes of very marked degeneration of range-horses during the past few years. Moreover, there is a vast surplus of these semi-wild mongrel horses far beyond the demands of commerce, unsalable, and a serious nuisance to the ranges by consuming food which might otherwise be used by animals of distinct value. The operation would, then, if generally applied, soon reduce this class of horse to the legitimate number demanded by our commerce. Besides, it seems that in all probability the mare-gelding will prove more desirable than the gelding, the mares being generally of finer finish, are free from the repulsive and annoying accumulations of filth in the sheath of the penis of the gelding, and are cleaner in the stall, owing to the direction in which the urine is voided—the gelding unavoidably soiling his bedding, while the mare need not do so.

The instruments used in the operation consisted of a Reed injecting pump, vaginal dilator, like that used for spaying cows; a twenty-two inch Chassaignac écraseur with guarded ratchets, which could be worked within the vagina, and a concealed knife. The mares were in two lots, which we shall designate numerically. Lot No. 1 consisted of sixteen mares, of which one was a very weak, thin, half-starved mongrel three-year-old filly, procured but a day or two before operation, and fifteen grade French draught-mares, four to six years old, four of which were broken to saddle or harness, while eleven were range-mares, handled slightly as weanlings, since which time they had ranged unhandled and unguarded among the mountains. Except the three-year-old all were in prime condition, and presumably not pregnant. None of them were known to be vicious except one of the broken mares, which was at times balky, probably during the œstral periods. None of the animals were at the time receiving grain, and only the five broken mares had at any time been fed on grain, but had lived exclusively on the range, except as weanlings, they had had an allowance of hay.

The five broken mares were taken from the range on the evening of June 24, 1896, and placed in a bare corral with running water, where they could drink at will; and the eleven unbroken animals were placed in the same corral the following morning after a sharp drive of ten miles from their usual feeding-grounds. The five broken mares with five unbroken were operated upon on the evening of June 25th, and the remaining six on the morning of the 26th. The mares were led into a chute used for branding cattle, the unbroken ones having been caught with the lasso. They were secured by means of a halter to a post in front of the chute; bars were placed beneath the chest and abdomen and the tail drawn directly upward and made fast to a cross-beam, thus preventing the animal from lying down. The hind feet were secured by means of ropes to posts in front of and behind the animal, so that it could neither kick nor extend the feet forward in an attempt to lie down, while the possibility of rearing was prevented by tying a rope across the back. Two or three quarts of tepid water were then thrown into the rectum and the feces removed by an assistant; the vulva and perineum were washed and the vagina filled with a 1: 5000 solution of corrosive sublimate; the hands and arms washed in the same, and the instruments disinfected.

The vaginal tensor was then introduced with the hand, the prolongation fixed in the mouth of the uterus, the walls of the vagina rendered tense, the concealed knife carried into the vagina, opened, and an incision about one inch long made at the end of the vagina just above the mouth of the uterus, after which the knife was removed. The hand being again brought into the vagina, one or two fingers were pushed through the incision, followed by the other fingers of the hand in cone shape, the walls readily giving way and the entire hand pushed into the abdominal cavity. The écraseur was then introduced, guarded by the hand. By following the uterus, lying immediately beneath the incision, the cornua were soon reached, leading from it at almost right angles, soon ending, to be continued by the ligament of attachment, in which the ovary was readily and unmistakably found at a distance of two or four inches from the blunt end of the cornua. The chain of the écraseur was then placed over the ovary, and, holding the instrument and ovary securely with one hand, the instrument was tightened with the other, the ovary quickly crushed off, and carried out along with the écraseur. The crushing off of the ovary was practically the only step in which there was evidence of any considerable degree of pain, and this was not nearly so severe, judging by the struggles of the animal, as is seen in the castration of horses. The second ovary was removed in the same manner. Very little bleeding followed the operation. The animals were released without further procedure, and all confined in a meadow convenient for observation.

They were inspected twice daily on June 26th, 27th, 28th, and 29th, as closely as practicable with wild mares. There was some slight straining shown by most of the mares immediately after their release, and nearly all were noted lying down quietly. None of them at any time, so far as observed, showed any signs of severe pain, not nearly so severe as is commonly seen after the castration of stallions. The three-year-old mare, which as before stated, was in poor condition, in fact not fit to undergo an operation, seemed stiff and dull, but continued to graze daily. No discharge from the vagina was observed and no symptoms appeared to create alarm, and by the 29th she seemed somewhat improved. She was the first animal operated upon in the number, and my first operation on a mare, and in addition to her unfit condition, the emptying of her rectum was neglected, presuming that without grain the feces would be soft and pultaceous, but instead the rectum proved quite full of rather firm fecal matter, and in cutting upward toward it, and the vagina of the mare being *very much* thinner than that of the cow, the cut was made too deep and almost penetrated the rectum, a complication which probably did much to interfere with her recovery. Of the other mares none appeared to suffer noticeably, except one animal lay down much of the time, but when approached would jump to her feet, trot quickly away and commence to graze. Two or three others showed slight stiffness for twenty-four to forty-eight hours, but not sufficient to lead the ordinary observer to note anything amiss. When approached they all trotted briskly away, all grazed regularly, and apparently did not emaciate or lose weight.

In operating it was found that one mare was about seven months pregnant, and it was expected that she would abort, but she seemed to still be carrying her foal safely at the date of our last observation, and continued as well as the others, but later she lost her foal, whether by abortion or otherwise, is not known.

Lot No. 2 consisted of six farm-bred mares, aged from two to ten years, all broken, and at the time of operation were not being fed on grain; they were taken directly from the pasture for the operation, which was conducted the same as in Lot 1, on the 12th of August, 1896.

One of this lot, an aged mare with foal at her side, was apparently unwell for some weeks, while the others showed only slight effects of the operation for three or four days, and on September 8th, twenty-seven days after operating, the owner reported all completely recovered. The owner of Lot 1 reported all well on August 3d.

Of the twenty-two mares in the two lots, but twenty were successfully spayed, errors in two cases having necessitated the abandonment of the operation at an early stage. Both were fillies, one two, the other four years old. In these cases the incision through the vaginal walls was made too far posteriorly, behind the peritoneum, and instead of entering the abdomen led into the rectum. As the peritoneal sac remained intact, no serious harm came from the error, except that the operation was of necessity abandoned. The causes of the error were at least two, the vagina of the mare being very much thinner than that of the cow, to which the writer was accustomed; the incision was carried too far before danger was anticipated; but of greater importance was the essential difference in the relations between the vagina and rectum in the mare and cow. These have not, we believe, been distinctly pointed out, though probably other operators have noted the difference. The peritoneal covering on the superior surface of the vagina is not so extensive in the mare as in the cow, the rectum and vagina being in immediate contact until near the uterus, thus leaving but a very contracted field for operating, especially in fillies which have not bred. Moreover, it has been noted by others that manual exploration of the vagina of the mare causes it to dilate by becoming "erected," in which case it appears that the free part of the vagina assumes a position at right angles to the rectum. If, then, we follow the directions generally given, and make an incision in the vaginal walls two inches *posteriorly* to the os, we cut not into the peritoneal cavity, but into the rectum. Our error indicates clearly that the proper place for the incision is *above* and *immediately against* the os uteri, and that this is especially necessary in young fillies, in which the available field for operating is very contracted, yet ample, if these directions be followed.

Some writers direct that the vaginal incision should be complete, the entire thickness of the vaginal wall being cut through, and state that tearing through the peritoneal layer with the fingers should in no case be attempted, even though the knife need be introduced several times, declaring that tearing through this membrane is exceedingly liable to induce grave suppuration between the walls of the vagina and rectum. In a large proportion of the twenty cases above noted we cut only through the mucous and muscular coats, and completed the opening by tearing through the peritoneum with the fingers, yet, so far as we know, had no untoward results therefrom. It seems far more likely that the abscesses related by others were due rather to the same error we have recorded above, that is cutting either behind the peritoneum or just at its passage from the rectum to the vagina. Evidently such an error would tend to that result. We found it much easier to rupture the peritoneal coat of the mare with the fingers than it is in the cow.

The difficulty which some record, of a partial paralysis of the rectum after the operation, leading to retention of the feces and necessitating enemata, was not observed except in a minor degree with the two fillies in which our errors were made and the rectum wounded.

On the whole, our preparations were in some respects quite imperfect, especially the opportunities for careful asepsis. True, the animals were in the main very vigorous and in a climate not so prone to induce septic infection as many other regions; but, on the other hand, we feel that the disadvantages in our arrangements quite fully offset these.

We were forced to conclude from our experiment that the spaying of mares is neither difficult nor dangerous, and with some experience in castrating stallions under similar conditions we consider the spaying of mares the safer operation of the two. In each we open the abdominal cavity, in the stallion almost directly through the inguinal ring, in the mare quite indirectly through the long vagina.

With this experience before us, we have not hesitated in our free clinics at the New York State Veterinary College to spay mares as occasion requires. We recently had occasion to spay a vicious mare, dangerous to her driver on account of violent kicking, especially when in œstrum. Presented at the free clinic for operation, after a morning's work on a heavy ice wagon, without food, she was secured by placing her in an ordinary sling, her tail being secured upward to the sling's pulley, the hind feet secured forward and backward to rings placed in the walls, and the operation carried out under good aseptic precautions, without incident, except that the vulvo-vaginal walls contracted so forcibly about my arms as to render the operation difficult and cause my arms to ache painfully for seven or eight hours, although the operation was of but fifteen or twenty minutes' duration. The powerful contractions of the vulva constituted good evidence of an exalted perverted sexual excitability evidently closely related to the viciousness of the patient. The animal was immediately led home, a distance of one mile, fed moderately and exercised gently daily. The owner reported that her appetite was constantly good, she showed no stiffness or disinclination to move, or other signs of suffering from the effects of the operation, and after a period of ten days returned to her accustomed work, where she has since continued more docile and in better flesh than prior to emasculation.

It seems to us, therefore, that the spaying of mares is an operation quite warranted in general veterinary practice, less dangerous and painful than the castration of horses, and far less difficult than many of our more common operations. A more general introduction of the practice would greatly increase the value of many mares, especially those which are vicious, nervous, or repulsive during œstrum. Many of these are now bred in order to render them docile, a practice which is most unfortunate, as such mares are not at all suitable for breeding-purposes, tending strongly to reproduce their vicious characters in their progeny. In addition to the suggestions naturally emanating from our experience as here recorded, we may note that the method we have casually named, of securing mares for this operation by means of the ordinary horse-sling, is a most effectual and convenient one. With the tail secured upward to the sling-pulley, it is not only out of the way, but is of great value in preventing the animal from sitting down in the sling, while with the hind feet secure both backward and forward the mare can neither kick nor extend the members forward under the belly, but with tail and hind feet secure, and with the aid of the sling, the mare is readily kept in a posture favorable for operating.

SILOS AND THE VALUE OF ENSILAGE.[1]

By Rev. T. D. Detrich,
FLOURTOWN, PA.

It is a sign of progress when theory and practice combine in order to arrive more nearly at the truths of nature. Science without experience seems to build castles in the air, and experience without science is a waste of time and great values. Happily the scientist, the producer, and the consumer are hand-in-hand to-day, working for one and the same end, and no one can say that their interests are any longer divided. It is for this reason that it is a pleasure for me as a layman to speak to you as professors in science, and in this way blend theory and practice, for we have reached a civilization that is no longer baptized with talk for talk's sake, but with talk for truth's sake.

The subject which your committee requested me to speak on was "Ensilage from a Practical Standpoint." In 1886 I wrote to Professor Miles, Massachusetts Experiment Station, asking for some reading-matter that would assist me in building a silo. He very kindly gave me the desired information, and I proceeded to make an air-tight wooden building. If I were to build one to-day, I would use the same material, but make it deep instead of long and narrow. The first corn ever put in was frosted, and I had as good ensilage as I ever fed. Major Alvord told me he had the same experience. For husking, the crop would have been ruined, but in the silo it was all saved. I can say that I was highly delighted when I opened the silo and found the ensilage excellent and the cattle eating it greedily. From that day to this I have looked upon corn-ensilage as a sure crop. The cause of the crop being caught by the frost was owing to the birds pulling it out three times.

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[1] A summary of a practical talk at a meeting of the Keystone Veterinary Association, Philadelphia, February 9, 1897.

The ground was heavily enriched, using all the manure made by two horses and seventeen head of cattle on two acres of ground from October 1st to May 1st. The corn was dropped three and four grains to the running foot in rows three feet apart. The variety was the large grained Southern hominy-corn, growing fourteen and sixteen feet high, one and two ears to the stalk, selecting this corn because of its great growth and having a sweet stalk, while the varieties of sweet corn have only a sweet ear. The crop is a perfect forest about the time it is ready for the silo. It is cut off down at the first joint with a hoe having a handle about eighteen inches long. The old-fashioned cutting-box machine with a narrow throat was soon laid aside for the sixty-inch throat ensilage-cutter that we saw at the World's Fair. Two men stand on the wagon and throw off grips of corn as rapidly at they can take it up, and the machine just devours it. This machine has practically solved the ensilage problem of cutting, while heretofore the cutting has always been a great bugbear to the siloist. Then, too, the machine does not chop the corn off in lengths of one-half or one-quarter inch, but it cuts, haggles, shreds, tears, and consequently distributes the grain all through the ensilage, and the carrier takes it into the silo.

In the early days of filling it was thought necessary to fill rapidly, tramp, and weight well. It is better to fill evenly and slowly, and if the corn is very dry to sprinkle with a watering-can as it goes up the carrier, and after the silo is full to wet the top with a few gallons twice a week, covering the ensilage with grass, chaff, or any thing that will cover a foot to fifteen inches and help exclude the air, for the ensilage will make its own cover. It is surprising how nicely the ensilage moulds a cover for itself. No bird can make a nest more neatly woven and not nearly so hermetically sealed from the air as ensilage makes its own cover. Every honest man will admit that the top for several inches spoils, and some fifteen to eighteen inches in the corners.

Now the opening of a silo is a more particular job than the putting in of the fodder. When a silo is opened all the bad black stuff in the corners, sides, and top should be taken off and out at once. No one should go into a silo and commence to dig as though he were digging garden in the centre of a bed, but he must scrape and fork off lightly the whole top, corners, and sides till all the bad stuff is out. Then let him take off the woven covering as it appears, and underneath is the perfectly kept ensilage, emitting a smell like a sugar-house on Delaware Avenue; and the whole silage should be taken off of the top to the depth of two or three inches a day after the silo is well opened; it will keep, and feed sweet succulent June pasture till it is empty.

We always feed it three times a day in a balanced ration of hay, bean gluten meal, linseed meal, and decorticated cottonseed meal, and regard it a most wholesome food for the Jerseys. The flavor of the milk and condition of the animals' health are all that can be desired. They relish ensilage above all other food; occasionally we feed all ensilage and no hay. Then to test the cow's fondness for the ensilage we take clean, ripe Baldwin apples and cut them up, and in every instance the ravenous fawn Jersey would smell over the apples in one end of the trough, but leave the apples and turn to the ensilage. There is evidently a difference between a chemist's crucible and a cow's stomach. We see this in the different experiment stations, estimating the value of dry fodder, corn, and ensilage to the same; but the cow knows the difference, and it seems to be the same kind of a preference that we have for a fresh June strawberry over the one that is dried or evaporated and water poured over when offered for food.

As for the cows, we do not know that we have any record-breakers, but are sure we have profit-makers; and ensilage keeps up the flow of milk, because it is nearest to pasture. It is better than dry fodder, because it is more digestible, and undoubtedly takes the place of roots.

It is the most economical way to handle the corn crop.

1. It is the least waste—for the stalks, ear, leaf, and tassel are all saved. There is no fodder-rick to build, no grist to grind, no corn to husk, no soft corn and no hard corn; no long stalks in the manure, and no bundles to tie.

2. The smallest space. A ton of cornstalks takes up 900 cubic feet of room; a ton of hay 500, and a ton of ensilage 45 cubic feet. Two tons of hay to the acre are called a good crop, while it is easy to raise twenty-five to thirty tons of corn-ensilage on the same ground the way we manure.

3. It is the cheapest base for a ration just for the reasons stated. It is no longer thought to be fancy farming to have a silo, but an indispensable necessity for the successful and profitable keeping of the dairy cow.

[The lecturer then passed around through the audience two jars of ensilage, representing the two methods of cutting, the shredded fodder emitting much the sweeter odor, which was accounted for by the close packing of the crushed stalks, ears, and fodder over the method of cutting in cubes, for both specimens were cut at the same time.]

THE PLEASURE OF BEING A VETERINARIAN.[1]

By J. C. Michener, V.S.
COLMAR, PA.

Occupation helps to form character. Different callings bring into play and develop special faculties. As the business, so the man. A person may engage in a monotonous routine business, like a special part in a great factory, to which he becomes so accustomed as to act in an automatical manner, and become, as it were, a part of the machinery, exercising scarcely more thought than the mechanism that his hands direct. It is one of the charms and advantages of our profession that the practitioner must think and act for himself. It is preëminently an intellectual occupation, and one's success is measured by his powers of observation and ability to determine the requirements of the manifold conditions in which he finds his patients. The practitioner soon gains a keen realization of the necessity of being wideawake to take in the situation and anticipate the conditions that will arise, and be ready to meet them as the game-player. It is when he becomes equally fascinated, and when every failure makes him more determined, that he is on the road to success and honor, instead of the disaster and ruin which overtake the gambler. As practitioners, we know the difficulties encountered, the great care and close observation required to make correct diagnosis and prognosis, control our patients, and satisfy our patrons in a business point of view.

In real abilities required we lose nothing when put in comparison with the noblest of all professions. Our patients suffer from equally numerous and intricate diseases; require as skilful surgery; but, *unfortunately*, they are mute. We *must* learn the symptoms of diseases, the language of every attitude and movement. We do not *ask* to have a pain located and described, but make it out for ourselves. Put the human and veterinary practitioner in the field of the other, and we would be at least equally successful.

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[1] Paper read before the Pennsylvania State Veterinary Medical Association, March 4, 1896.

Prognosis is one of our essential acquirements. We must tell at the onset the duration and result of the disease, the trouble and expense it will involve, the outcome of malformations, predispositions, freaks of nature, or odd behavior, in order to give our clients sound advice from a business point of view. This required knowledge is not of the horse alone, but of all living creatures over which man has control. Who can mention a business requiring a more diversified knowledge, more close observation and better judgment? Skill is always appreciated; we honor the person who can do something beyond the capabilities of ordinary mortals; hence our profession opens a field of rare usefulness, honor, and moderate profit, all of which lend rational abiding pleasure to our calling.

As you practitioners well know, it is not all fair sailing; the difficulties are great, and mistakes are censured unmercifully. Fortunate that it is so. It teaches us caution, develops our manhood, makes us self-reliant and strong. Our facilities for intercourse with our fellow men, the gratitude and friendship accorded us are among the substantial pleasures that fall to our lot. I imagine the country practitioner is in better touch and sympathy with his patron than his city brother. The farmer cares for his own stock; he receives the veterinarian as his guest; they become interested in each other, and a lasting friendship results. It is very pleasant and exhilarating to sit behind a good roadster and glide along amid the beauties of nature, and receive the friendly greeting of those one meets on the road. It is a great source of pride and pleasure that the veterinary art is rapidly gaining recognition and prominence among the professions, and that the time is growing short in which unworthy persons shall find employment because there are not enough qualified men to fill the public want.

We should all take pride in our business, and do our utmost to have a good class of men, thoroughly trained, in whose hands to place its keeping.

ACUTE LAMINITIS.[1]

By B. L. Clark, M.D.C.,
MONTICELLO, WIS.

The subject I have chosen is acute laminitis or inflammation of the sensitive laminæ of the foot. I do not expect to present anything new, as this disease has been thoroughly investigated and discussed in works on veterinary pathology, but simply to refresh our minds on the subject. This disease is quite common among horses, and is frequently seen in cattle. It is the most-dreaded disease to which the horse is liable. It is not confined to the feet alone, although its chief seat is there. It has a variety of causes—as over-exertion, error in feeding, drinking cold water when heated, standing in a constrained position for a long time, a sudden chill, or indigestion. The last cause in my opinion is the most common. It frequently arises from other diseases, or, rather, is a complication of such diseases as pneumonia, enteritis, or bronchitis, where the whole surface of the body is affected, as seen in cases where the hair of the mane and tail falls out. The tendency of this disease is to throw off the hoof, as indicated by the rings on the external surface of the hoof-wall. It occasionally arises from over-exertion and concussion, exemplified in cases where horses are run against time, but it is much more frequent where the mucous membrane is affected. In cases of concussion the pedal bone is involved, and results in ostitis, and sometimes necrosis and sloughing of the hoof, terminating in an agonizing death. The symptoms of both forms are almost identical.

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[1] Read before the meeting of the Wisconsin Society of Veterinary Graduates, Madison, February 5, 1897.

Pathology. Inflammation of the sensitive foot includes the laminæ, sole, and os pedes, resulting in an exudation which is greatest at the toe, the tissues being more vascular at that part. The pain is most agonizing and persistent, owing to the fact that the foot is enclosed in an unyielding horny box. The bloodvessels being engorged and having no chance to swell or expand, pressure upon the anterior part of the pedal bone has a tendency to force it downward and separate it from the wall. As the result of the inflammation there is an exudation thrown out at this point which is of a dirty reddish color; this fills the canals and lacunæ of the pedal-bone, forming a barrier to the circulation of the blood, thus hastening the process of necrosis and decay. Should the inflammation persist the exudation accumulates at the toe, separating the horny and the sensitive laminæ. As a result of this the anterior part of the os pedis is forced downward, producing a convex condition of the sole, while the secreting power of the sole is arrested or prevented, and the horny sole becomes weak and spongy, affording but little protection to the sensitive parts within. The outer horn of the wall or that secreted by the coronary band now presents a ribbed appearance, as if attempts had been made to cast off the hoof. These rings are irregular and run together at the anterior part of the hoof. Prof. Williams says that occasionally we have suppuration at the coronet and sometimes at the sole, detaching the sensitive from the horny sole. Laminitis produced by concussion is usually confined to the front feet.

Many writers state that affections of serous membranes, such as the pleura, frequently terminate by metastasis in laminitis. But I am of the opinion that when the sensitive laminæ become involved during the progress of some other disease it is always the mucous membrane that is affected, owing to the fact above-mentioned, that the skin is continuous with the mucous membrane; it is also involved and in this way extends to the feet. The skin being affected is somewhat congested, and will naturally involve all of its appendages. The circulation of the feet being restricted within an unyielding space, the walls being unable to expand, thus produce the intense pains, by the engorged bloodvessels pressing upon the nerves. We also have a fair example of their relation in cutaneous eruptions from indigestion, catarrh, etc.; the irritation may be very slight, scarcely observable. But the irritation of the folds of the sensitive laminæ in the foot surrounded by its unyielding case causes the acute symptoms.

Acute laminitis may terminate in resolution of the parts, suppuration, gangrene, and subacute or chronic laminitis. The chronic form of the disease is seen when the acute has partly subsided and the symptoms somewhat abated. Horses suffering with chronic laminitis are predisposed to the acute form. The pathological changes of the chronic are the descent of the os pedis, thus causing a convex, weak sole, and a great horny growth at the toe.

Causes. Indigestion, concussion, bad shoeing, hereditary tendency, and defective conformation. It is said by some that horses with wide feet are more liable to the disease. But it is the general opinion that horses with moderately small feet, and weighing about twelve to thirteen hundred pounds, are most often affected. The exciting causes are: over-exertion, concussion, and indigestion when caused by an engorged stomach. The disease is generally confined to the front feet, especially when caused by concussion. But when caused by indigestion it may affect the hind feet only, or all four of the feet.

Symptoms. The horse is excessively lame and almost immovable, especially at starting; the whole body seems to be cramped. He stands with hind feet well under the body, and front ones advanced to relieve them from the weight as much as possible. If all four feet are affected he will put them nearly together, sway backward and forward, and from side to side in order to get the weight on the heel as much as possible, the toes being elevated from the ground.

If compelled to move he elevates his feet with difficulty; he will often groan with pain and sweat freely in patches, while the remainder of the surface of the skin will be hot and dry. Temperature from 102° to 105° F.; pulse full, hard, and increased in frequency; the general symptoms are those of agonizing pain. Appetite is somewhat impaired and thirst generally increased. They usually maintain the standing position, but when they do lie down they often remain for some time, and seem to be relieved. Cases of suppuration and gangrene are not very frequent owing to the anatomical structure of the veins of the foot. The feet will be found to be hot to the touch, and when tapped with the hammer the animal will show signs of pain. The pulse at the digital artery will be found full and throbbing, the respirations accelerated, the mouth hot and dry, the feces dry and coated, urine scanty and high colored. The symptoms vary with the feet that are affected. When the front feet are affected, which is most frequently the case, they are advanced forward, and the hind feet are carried well under the body to relieve them of their load. But when the hind feet only are involved the animal will often lie down. It may be most marked in one foot, but this is generally due to some local lesion.

In the ox it is more serious in the inner claw on account of it bearing the most weight. He walks with difficulty and takes advantage of every opportunity to lie down. The fever is severe, and sometimes there is loss of appetite and rumination.

Termination of the acute form. Well-treated laminitis is of short duration, and terminates in a short time in resolution. If it runs for a longer period than eight to twelve days, chronic laminitis will probably result. Resolution in the acute form is accomplished when the inflammation is quickly subdued and the products are absorbed; the horn-secreting structure of the foot is then not often altered.

Complications and terminations. Hemorrhage, inflammation with exudation, suppuration, gangrene, and lastly chronic laminitis.

Hemorrhage is that condition when rupture of the capillaries has taken place, thereby infiltrating between the two laminæ, and sometimes oozing out at the coronet. If oozing has taken place it is advisable to cut in at the toe, at the junction of the wall and sole, thus relieving the pressure.

Inflammation is the result of congestion if not relieved, and as a natural consequence we have exudation, this exudation being thrown out from the sensitive lamina separating the sensitive from the horny, thus pushing the pedal bone downward, and the wall upward, thereby forming a condition known as chronic laminitis.

Suppuration is more rare, and is only seen in the traumatic form. It generally attacks the sensitive sole, and occasionally works its way to the coronet. This is a very painful complication. Relief may be obtained by making an opening at the toe, but sloughing and dropping off of the entire hoof is occasionally seen.

Gangrene of the subhorny tissue sometimes takes place, though seldom, under the influence of excessive pressure, especially when there is a subhorny exudation. When this sets in the violent pains suddenly cease, resting is more solid, and he moves without difficulty; but at the same time the countenance of the patient is anxious and contracted, the pulse becomes small and difficult to count, the temperature diminishes, and the animal has an unsteady gait, is indifferent to excitement, and soon he dies from septic infection.

Chronic laminitis is that condition of the foot when resolution has not taken place in ten to fifteen days.

Treatment. Give a mild purgative (aloes I think is best), follow with febrifuges, as aconite, the tr. or fl. ex.; if the fever is high may give every two to four hours. May give potassium nitrate, as it seems to produce good results in this disease. Remove the shoes and stand the horse with affected feet in hot water as deep as the pastern-joint, let him remain there for thirty to forty minutes. Then remove and apply hot, soft linseedmeal poultices. Repeat the bathing two or three times a day, and each time apply a fresh poultice. At the end of about the third day cease the bathing, and change the poultices every twelve hours until relief has been afforded. At about the third or fourth day I think it advisable to give a laxative. Would also advise walking exercise, twenty to thirty minutes three or four times a day. At the onset of the disease the horse should be placed in a loose box-stall. well ventilated, and bedded deeply with short straw or sawdust. If the weather is cold clothe him warmly. If the appetite is not lost give soft, easily digested food. After the effects of the disease have passed off, he may be shod with a wide web shoe, and the external wall and sole of the hoof should be painted three or four times per week with some kind of hoof-ointment. During this time he may be put to moderate work, or better still, if in summer time, turn on wet, low pasture for several months, which will soften and stimulate the growth of the hoof.

Users of milk in Terre Haute, Ind., have learned that a so-called preservine, highly injurious when taken into the stomach, is largely used in the milk sold in that city.

ACTINOMYCOSIS.

By B. F. Kaupp, D.V.S.,
KANSAS CITY, MO.

Actinomycosis is an affection characterized by the presence in the animal tissues of a vegetable parasite, or fungus, known as actinomyces, which causes a chronic inflammatory process usually resulting in abscess. This disease has been called by other terms, such as "lumpy jaw," "big jaw," and "swelled head." The disease, which was first found in cattle, was described by Bollinger in 1877, and in 1878 was also found in man. It was not thoroughly understood until about 1882. Clumps of the organism producing this disease can be seen in the pus by the unaided eye; they are small bodies, varying in size from a pin-point to a millet-seed, and in color are yellowish-white. Under the microscope they appear as clusters of straight or wavy branching threads, and also as radiating prolongations, thick and club-shaped, whose club-ends are directed out toward the circumference, and which radiate from the centre and give them somewhat the appearance of a sunflower. Cultures of the ray-fungus are made with difficulty; the medium upon which they are grown is agar-agar, egg-albumin, blood-serum, and gelatin.

It is claimed that attempts to transfer the actinomyces from one animal to another by mixing it in the food have not been successful, but that inoculations have been successfully made by introducing the granules into the peritoneal cavity of rabbits, and by injecting the infective material beneath the skin into the veins and into the abdominal cavity of calves.

Dr. Warren, of Boston, in his *Surgical Pathology*, gives us one point worth noting, and that is that "this disease has never been found in carnivorous animals." The most frequent route of infection is through the mouth, entering cavities of decayed teeth or abraded surfaces in the mouth or other portions of the digestive tract. It may also be conveyed through abraded surfaces on the skin. The above author also states that "after once having gained a foothold, the parasite is said to be conveyed to distant parts of the body through the blood-currents, and not through the lymphatics."

The actinomycotic abscesses when cut open appear to be lined with a granular membrane, and usually contain a thick, creamy pus, in which the yellowish granular bodies float. The tumors are surrounded by thick capsules, the surface of which is fibrous. When the actinomyces begin to develop in the tissue a growth of sarcomatous connective tissue is built up around them. Nature, probably, in this way tends to retard the growth. The cells nearest the centre of the growth undergo fatty degeneration, and in this way form small abscesses; the intervening tissue breaking down, they communicate with each other, forming larger ones.

We find actinomycotic tumors affecting the superior maxillary bone; the maxillary sinuses may be filled partially or completely with actinomycotic growth, which may possibly extend into the frontal sinuses. These sinuses may also contain pus. We may find large growths upon one or both branches of the inferior maxillary bone. This disease may affect one or both of the posterior pharyngeal lymphatic glands, the affected glands sometimes reaching the size of a goose-egg, and containing in the centre a thick and more or less granular fluid. The submaxillary and other lymphatic glands of the head are sometimes affected. The parotid gland is sometimes the part invaded, probably by the germ finding its way to that gland through Steno's duct. We find this disease affecting the soft structures of the head and occasionally the tongue. The lungs are sometimes the seat of the disease, where we find in one or more lobes masses of actinomycotic growth.

On the European continent this disease appears to most frequently affect the tongue, while in this country it is most often found affecting the glands and bones of the head. When the bony tissues are invaded by this vegetable germ we notice the characteristic proliferation of the cells of the osseous and periosseous tissues, which often attain great dimensions. By reason of the activity of the fungus, the bone and its coverings are supplanted by a new growth of fibrous tissue, inclosing masses of granular tissue in which are found the granular bodies or fungi. Externally these abscesses or tumors appear to be irregularly oval in shape, and we may possibly see several of them on the superior maxillary and other bones of the head.

If not arrested in its growth, the actinomyces erode one or more channels to the cutaneous and mucous surfaces, through which the fungus and the fluid in which it floats escape, falling into the mouth-cavity or on to the ground if in pasture; on the woodwork, etc., if the animal be kept in a stable. When mucous and cutaneous surfaces are invaded by the actinomyces it is manifested by fungous granulations, which have been described as ulcerating granuloma. These masses emit an offensive necrotic odor, and have a repulsive appearance.

On the European continent this disease is known as "wooden tongue." It is quite common, and is said to be permanently cured by the iodide of potassium treatment. This treatment was recommended by a German veterinarian about the year 1880. It appears that no one successfully treated actinomycosis of the jaw in this country until 1892, when Dr. Norgaard, veterinary inspector in the Bureau of Animal Industry, first tried the experiment with success. Since then many practitioners have reported cures.

During the past ten months I have had considerable experience in holding post-mortems upon actinomycotic cattle at one of the largest abattoirs of this city. The total number of post-mortems during this time aggregated about a thousand. Of these about 30 per cent. had the left submaxilla affected, and 20 per cent. the right; 20 per cent. the right superior, and 20 per cent. the left superior maxillary bones; 5 per cent. were in the soft structures only; 5 per cent. in both the right and left superior maxillary bones; and about 1 per cent. in the parotid glands. In about 4 per cent. actinomycotic lesions were found in the lungs, and about 5 per cent. in the posterior pharyngeal lymphatic glands; and in about 40 per cent. the submaxillary lymphatic glands were more or less involved. The mesenteric lymphatic glands and the liver are sometimes affected. In about 20 per cent. of the total number the disease was extensive or in advanced stages.

THE PRESIDENTIAL ADDRESS, WISCONSIN SOCIETY OF VETERINARY GRADUATES.[1]

By G. Ed. Leech,
MILWAUKEE, WIS.

When the gavel fell calling the meeting to order it bade you all welcome to the field of labor, not as in the quarries or on the farm, or in the field of mechanics, but unceasing labor in the most interesting of all fields to each one whose chosen profession is veterinary science.

You are not expected to work upon the foundation, for that was laid, so far as history gives us information, in the days of the greatest of all men—intellectually—the wise King Solomon; and with the history of the beginning of the work in the State of Wisconsin, I take it, you are all familiar. But it is our duty now to aid in building the superstructure, and let it be our one thought to do our work so thoroughly that it will withstand the adverse criticism of ages to come. By a united and persistent effort much has been accomplished: no country has a better system of food-inspection; our colleges have unanimously adopted a three-years' course, with a higher standard of qualification; and constant improvement is shown by the journals, which are excelled by none. Nearly every State with important agricultural interests has enacted stringent laws, and ere the present session of our Legislature ends this State will be in line with the rest that are looking to better their condition in the matter of veterinary science. I would that the motto of our Society might be "Patriotism and Coöperation." There seems to be a decrease of patriotic and coöperative spirit all over the country in our profession. Patriotism has come generally to be considered and interpreted as a willingness to fight and die for one's country and its institutions. That definition answers very well for patriotism in time of war, but it is deficient in that it allows no room for patriotism in time of peace. We should consider that a very weak specimen of conjugal fidelity which impelled a man to care for his wife and devote himself to her necessities only on occasions when she was threatened by ruffians. A husband's love has its sphere of devotion at all times and in all situations; so has patriotism. If a man loves his profession and is true to her societies and affectionately concerned for their standing and permanence, he will be all the time doing something in her behalf. What our profession needs most is men who will live for her, not simply die for her, and live for her every day of their lives. A member of any profession has no more right to be neglectful of its interests than a parent or child has to be neglectful of the interests of the family of which he is a member. There is the same condition of responsibility involved in both cases, and the man who neglects either is rightly looked upon as a shirk. What is needed in both cases to bring about a condition of success is coöperation. Elect whom you will as the officers of your society, and unless they receive the hearty coöperation and support of the members they are in the position of the editor of a first-class journal who has the best selections and contributions from the pens of the most eminent writers, but has no subscribers. In both cases the result will be failure. In no case can any man or society expect to rise above their ability, and all depends upon coöperation.

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[1] Read before the meeting of the Society, at Madison, February 5, 1897.

What I wish to convey to your minds in this connection is this, we are composed practically of a number of young men, and what is the use of being young men with warm blood in our veins and live brains in our skulls, if in matters of so vast an import as these we have to be wound up every six or twelve months, in order to make us strike when the hour comes, and to be held over a slow fire of agitation before every meeting in order to make us hot enough to be passionately interested in the welfare of our societies, and to speak and act with an earnestness that will secure that welfare.

Our Society since its incorporation has not grown in numbers befitting the profession in the State, neither has it been favored with an annual attendance creditable to its membership; but, with harmony and coöperation once firmly established among the members as their motto, our ranks will soon be increased. If there is any young man aware of the aim and purposes of our Society and free from the influence of our wily antagonists, who can survey the situation without feeling a desire to enter into its membership, may you all have compassion for him. Our mission in life is to furnish the best and most scientific treatment to a class of patients who are unable to express their gratitude to us in well chosen and flowery language for the results obtained by our achievements of learning; but among those who employ us it is coming to be a recognized fact that they must look to us for that achievement, and it is incumbent upon us not to betray that confidence.

With patriotism and coöperation for our motto we will be enabled to place within the walls of our superstructure that kind of material that will redound to our credit and wider influence. My only concern is that those who are thinking about the superstructure of earnest and far-reaching intelligence and an elevated and vigorous society may forget the fact that much depends upon their own personal efforts; they should with sagacious and conscientious fidelity devote themselves to building up their own possibilities as a fortress against the unscrupulous practitioner and wily politician. Our Society's usefulness will cease the moment we allow its influence to be used in other than a professional line. We are not organized for any other purpose, and we should use our efforts in this line only. Every department of food-supply in the State should be under our control, and our members should make untiring and unceasing efforts to accomplish this end. The dairy-farms and their products should be inspected, the milk sent from the country to the city should be guaranteed free from contagion, and the attendants upon stock should have assurance that they are not exposed to tuberculosis and other forms of contagion; and this can only be done by placing competent veterinarians on the boards of dairy- and food-inspection. The system of State meat-inspection should also receive our attention, and our efforts should not cease until there is a competent veterinarian placed on every board of health in the State.

Briefly let me allude to the work of the Bureau of Animal Industry and the correlative body the State Experiment Station, which have been steadily adding to our wealth of knowledge and advancement, cutting away the brushwood that obscured and covered up the truths hidden deep in nature's methods. They have investigated the perpetuation of species and kinds, and through their researches the ravages and destructive forces of microbic bodies have been checked and our people have in a manner been saved much loss and hardship that brought disappointment and trial as the fruits of their toil. Better still will be the work of the department in the future, for the establishment of the merit-system of appointment has already increased the efficiency of the service, and it will become the aim and ambition of many of our best men who are fitted for this line of work when they see that merit prevails and that tenure of office depends solely on ability to perform well the services required. One now feels like commending this service to the consideration of all, for it affords great opportunity for developing members of our profession, some of whose abilities and powers might otherwise never be fully brought forth. It will enhance this work in every way, and rich fruits yet to be gathered though the services already rendered by this department stand out more prominently as a true wealth-conserver and safeguard to our people than those of any department of the government. When measured by the relative cost to the immense moneyed interest represented by our live-stock industry, it is beyond question a most useful department of our government. Likewise we should as a society put forth every effort to establish the same system of inspection within our State, and ere long the people will hail the day of its introduction. The department of the State work should also be extended along this line in the interest of the people. Tuberculosis, anthrax, glanders, hog-cholera, and all other contagious diseases are increasing every year with the increase of valuable stock, and it is becoming necessary for a more thorough and careful watch to be kept on these diseases in the interest of public health and the live-stock growers. There is manifestly need of a competent assistant in every county, working under the State Veterinarian, to whom the people may look for protection in these cases of need, and they should work under the merit-system, that the people may be insured with a guarantee of competency. The late Dr. V. F. Atkinson, all honor to his name, the promoter of veterinary work among us, had planned and outlined a system similar to this; but sickness and death prevented the execution of his plans. Let us take up the work where he was compelled to lay it down, and give to the people a service creditable to the profession and an honor to our State.

Another thought that I would have you keep in your minds in these days of patent nostrums, specifics, and agents, which are supposed to dispose of every disease by a simple measure, or a fixed plan of treatment, is that the field of scientific medication and the proper use of drugs will for many years be our chief reliance for success and a measure of our worth in every community. Aconite, belladonna, and cinchona bark, aloes, epsom salt, and linseed oil, saltpetre, sweet spirit of nitre and ergot, have not lost their potency for good, and each has its use, more valuable to-day than ever before, for surely he who has lived in the profession the past ten years must have learned how much better to use drugs. How, when and where to employ these efficient agents and the numerous other more potent ones that are crowding upon us every day demand our earnest attention and close study, that we may reap the full harvest of reward by their use and add to the valuable storehouse of veterinary therapeutics that has for so many hundreds of years served well the aims and purposes of our predecessors in the days when microbes, antitoxins, and serums were unknown quantities. I have alluded to these few features of our profession as they present themselves to my mind to-day, simply to remind you of the fact that the scope of our work is enlarging and will continue to enlarge, at the same time demanding from you greater devotion and a deeper attention in the future. These vitascopic views of our work must surely impress upon you one great need which I have briefly alluded to before, and for which I beg your indulgence in returning for a moment, and I would that I might say something to impress upon you its deep and vital importance to our future well-being. Higher veterinary education is the demand of the hour, and I have only words of praise for those schools so true to our interests that have added so much strength to this work during the past year. The opening of the college year of 1896 brought the richest promise on all sides, and it is this great stride, this promised future, and fruition of our hopes and wishes that I desire to refer to for a moment.

It is our duty as members of a chosen profession to commend publicly those who have in these trying financial times courageously taken this step of advancement. They should command from us, one and all, the most earnest support we can give them, and at all times, with voice and pen, we should ever be ready to aid them in this laudable work. In your community you should each take an active interest in any man who may be considering the veterinary profession as his future calling, and see that, so far as you may be able, he shall be so advised and influenced as to select one of the many good schools where he may obtain such an education as will equip him well for the work to be done in the future. In every way you can contribute to the thoroughness of this work, you should do so directly and indirectly, and use every opportunity to enable those who are to be our successors and fill our places when we have passed to the great beyond, to be men of well-filled minds and with a storehouse of knowledge that shall make them better able to fill the *rôle* of a veterinarian than you or I have ever been. For many years we have been accustomed to follow in the line marked out for us by the veterinarians in the older countries of Europe; but to-day we note a change in the aspect of affairs, and observe with pride the veterinarians of the old world following the swath we are cutting through the long-neglected and ignored fields of veterinary sanitary medicine, and I would not be doing a justice to the United States Veterinary Medical Association if I did not call your attention to the fact that all this has come about from their untiring efforts in this line, and we must recognize the fact that all State organizations and their members are only auxiliaries to the national society in all questions of national and to a great extent of local interest. While I am not unmindful of the present financial stringency, it is my duty at this time to urge upon you the necessity of using your earliest opportunity and convenience to secure your membership therein.

I ask you all to give the freest expression to your thoughts and ideas during this meeting of our Society, and would call your attention to the fact that this is the haven toward which our annual pilgrimages are made, where we can place our offerings and tribute on the altar of science as tokens of the appreciation of the responsibilities our profession has laid upon our shoulders. With this hurried review of some of the phases of our work I ask your thorough consideration of the best programme, the able work of your efficient Secretary, ever presented for your consideration, instruction and entertainment, which I am sure will add to the wealth of knowledge of every one present, and when we return to our fields of everyday work it will give us a strength and a confidence that can only be appreciated by those who have regularly attended these gatherings. Finally, in summarizing my work in your midst, I wish to say that there could be no more laudable desire felt by any member of our profession than to be called to the chief place in the organization, and thus to represent his profession in a State like ours. For five years I have been honored by this Society in official place: three years as secretary, one year as censor, and one as president, and I cannot lay down the duties of office without expressing my sincere appreciation of the honors you have conferred upon me. Equally have I felt the great responsibility that rested upon my shoulders, and I am not unmindful of how far short I have fallen in advancing your work through this organization. I shall carry to the end of life pleasant memories of this recognition of your esteem and lasting recollections of the warm support and assistance I have always received from the members of this Society.

TICK-FEVER.[1]

By D. F. Luckey,
VETERINARY STUDENT, ONTARIO VETERINARY COLLEGE.

One of the most common diseases among cattle may be appropriately called tick-fever. This disease is known among laymen by a number of different names, such as dry murrain, bloody murrain, red-water, Texas-fever, Southern cattle-fever, Spanish fever, etc.

Tick-fever is caused, in susceptible cattle, by a tick, *Boophilus bovis*. The tick, in biting the cow, injects an animal microörganism (*Pyrosoma bigeminum*) into her blood. Once in the blood of a susceptible animal, this microörganism propagates at an enormous rate, and in a few days will produce death.

Where the ticks get the microörganism of this disease, and exactly how they inject it into the cow's blood, are not known. It is sufficient to say here that when native, Northern, or susceptible cattle are exposed to this tick, the disease invariably results. It does not matter whether the cattle be moved to the ticky range or the ticks be voluntarily carried to and placed upon the cattle; the result is the same.

Tick-fever has existed in the United States ever since the cattle of the early Spanish and English settlers began to mingle together. It is safe to say that the ticks originated with the Spanish cattle. They are now confined to the Southern States, and quarantine regulations guard against their being spread broadcast throughout the Northern States during the warm season of each year. They are unable to survive the cold winters of the Northern States, so that when Northern territory accidentally becomes infested the infection will last only till the cold weather of the following winter. The warm climate of the Southern States tolerates their existence throughout the year.

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[1] Read at the December meeting of the Veterinary Medical Society of the Ontario Veterinary College.

The question naturally arises, Why do the Southern cattle, which carry the fever-tick almost constantly, not suffer from the disease? The answer is that they are immune. It is a well-known fact that one attack of many diseases results in subsequent immunity. Dr. Sternberg's theory of immunity, applied to tick-fever, would indicate that there exists in the serum of the blood of Southern unsusceptible or immune cattle an antitoxin of this particular disease-germ, and that the germ is destroyed by the antitoxin as soon as it enters the circulation. If the germ were not destroyed, and the only action of the antitoxin were to counteract the toxic products, there would be a constant state of pernicious anæmia, as the pathology of this disease shows to exist when the germ is active. There are reasons to believe that immunity is secured by the calf undergoing an attack of this fever while quite young, and that such immunity is permanent. Such an attack is very mild: in fact, hardly perceptible to laymen. Breeders of thoroughbred cattle say that native calves shipped to infested territory usually do well, while yearlings to adults shipped to the same pastures almost invariably die. It is my opinion that native calves could be prepared for Southern breeders by inoculating them with the ticks at from two to four months of age. The indications are that an attack in the adult does very little toward securing immunity for the animal.

Symptoms. External symptoms of tick-fever are cessation of rumination, anorexia, digestive derangement, drooping ears, high pulse and temperature, and unconcerned about surroundings. An attempt to walk will show a swaggering gait and indications of weakness. After the first day or two the urine will be red. If the thermometer is at hand, the peculiarly intermittent fever of this disease can be discovered. The temperature of the first day will be about normal in the forenoon and 105° to 107° in the afternoon. The temperature of each successive forenoon is a little higher until about the fifth or sixth day, when the morning temperature is the same as the evening. But a scant escape of blood will take place from an incision through the skin. The presence of the tick, with the above symptoms, is reasonable proof of tick-fever, yet a microscopic examination of the blood to find the disease-microbe is the only absolute test.

Pathology. Tick-fever is strictly a blood-disease. Constipation, impaction, dysentery, nephritis, engorgement of the spleen, derangement of the liver, and congestion of the lungs are simply incidental, and do not exist until produced by changes which take place during the course of the disease. The germ takes up its abode in the red blood-corpuscles and destroys them. The reduction in four to six days is estimated to be from three-fourths to five-sixths of the normal number, leaving the blood in a wonderfully depleted condition. I believe that death results directly from the lack of oxygen in the system. The débris of the broken-down corpuscles at once engorges the spleen, clogs up the small bloodvessels of the liver, causing disintegration, and often causes congestion of the lungs and inflammation of the kidneys. The toxic products probably cause the fever.

Post-mortem. A post-mortem examination shows an enlarged spleen, diseased condition of the liver, giving it a lighter brown hue. There are often signs of inflammation of the kidneys and congestion of the lungs, and nearly always a derangement of the digestive tract. There is either constipation, with impaction of the manifold, or inflammation of the intestines from excessive diarrhœa. A microscopic examination of the blood shows a paucity of red corpuscles.

Treatment. Protective treatment consists in keeping the ticks off of the cattle. Directions concerning protective treatment would make up a long essay, and cannot be taken up here.

I give the following as the medicinal treatment I think best for an animal affected with tick-fever: Withhold all dry food. Tempt the appetite with bran-slops, green grass or corn, apples, water-melons, or anything of the kind that may be at hand. I think such food tends to prevent impaction and constipation, and may be beneficial to digestion. Salt should be given in moderate quantities, as it stimulates the appetite for water. Plenty of pure, cold water should be allowed. To be successful, the treatment must begin as soon as the disease manifests itself. It will be useless if delayed until the resulting changes have taken place. If a purgative is indicated, give linseed oil, a pint and a half. It is well sometimes to use a febrifuge, the tincture of aconite, thirty drops every four hours, being probably the best.

The treatment should be directed principally to the destruction of the germ in the blood at an early stage of the disease. Quinine sulphate is the best known medicine for this purpose. Give three drachms every three hours until two to five ounces have been taken, and if properly absorbed it will produce valuable results. If the manifold has become dried and impacted, and there is constipation, quinine given internally will be of no value whatever. The use of two-drachm doses of quinine bisulphate intraveneously every three hours for a day is a treatment that deserves further trial.

After recovery allow the animal plenty of green food and give a blood tonic.

AZOTURIA.

By John R. Hart, V.M.D.,
PHILADELPHIA.

(Continued from page 286.)

Urea. As to why and how urea gets into the blood. It is known that the albuminous food constituents in digestion, through a process of hydration by the action of ferments, are converted into peptones which enter by absorption into the radicals of the portal vein, but an insignificant portion being absorbed by means of the lacteals when once within the blood current, possibly in the process of absorption itself; the peptone must apparently be reconverted to the form of albumin, for the amount of peptone detected in the portal vein, even after an abundant albuminous diet, is too small to represent the amount of albuminous matter absorbed. We may, therefore, assert without fear of contradiction, that almost immediately upon entering the blood current the albuminous food constituents are converted mainly into serum albumen. It has further been stated that urea represents the final product in the series of decompositions which the albuminous bodies of the tissues undergo. The attempt to trace the changes, commencing with albumin and terminating in the production of urea, is frustrated by the mysteries of the process. It is known that with the withdrawal of all food the excretion of urea decreases. It is further clear that urea is formed at the expense of the albuminous constituents of the tissues; that the excretion of urea may be increased by albuminous food, and the amount of urea eliminated increases proportionately with the increase in albumin administered as food. Urea is not, however, a simple product of oxidation of albuminous bodies, but is a product of complicated decompositions.

An increase in muscular exercise leads to an increase in the elimination of urea. As the amount of kreatin formed by the muscles increases with exercise, and the amount of urea eliminated by the kidneys increases under the same circumstances, it would appear reasonable to assume that the kreatin resulting from the breaking down of the albuminous tissue constituents of muscles and nerves represents the main source of urea. The suppression of urine is followed by the accumulation in the system of a large amount of urea. Again, the urea under all circumstances in this disease becomes a constituent of the blood. Another source of urea may be found in the products of decomposition of albuminous matter in the intestine. The introduction of a large amount of proteid in the alimentary canal is followed by a corresponding increase in the amount of urea eliminated.

An excess of proteid over and above that needed for nutrition in the alimentary canal breaks down under the influence of pancreatic digestion into leucin and tyrosin.

If leucin be itself introduced into the intestinal tubes the amount of urea eliminated will be proportionately increased. Leucin, therefore, may represent a step in the process of conversion of albumin into urea. In the latter case we can probably locate the conversion of leucin into urea in the liver, for the liver, unlike other glands, normally contains large quantities of urea.

We can assume, perhaps, that leucin is absorbed by the portal vein, hence the formation of urea out of leucin would be a natural conclusion.

This evidently shows the relation between the liver and the kidney in the disease of azoturia.

Nerves. As to the nerves. Complex causes which are capable of introducing alteration fall often upon the nerve elements, and through them, as an intermediary, provoke reflex disturbances. Some manifest themselves in the diseased part or organs, where the irritation of blood absorption and nutrition causes work to be done in an abnormal manner. Others reflect upon the whole economy; the heart and respiratory action is accelerated, and the elaboration of material is found altered in all the cells of the body. Urea and carbonic acid are produced in much greater quantity. Nerve reaction has not only added certain peculiar features to local manifestations, it has bound the whole organism to the work which is going on in the diseased part. Besides, nerve reaction nearly always borrow the coöperation of another. Pathogenic process, every nerve excitation, cold, shock, emotional or traumatic, may produce alterations of some kind. These are not diseases. The real disease, when it is roused by nerve reaction, infers, except in cases where the stimulation is excessive, and those wherein the nervous system is abnormally excited, an essential deterioration of the organism. A disturbed nervous system induces disturbance of nutrition, perverted nutrition leads to the development of new substances which may become toxic. There are often formed in the organism peptones which do not originate in the intestinal tube, but which are injurious in this sense, that escape by the urine, and thus bring about an abnormal spoliation of the organism. There are thus produced abnormal albumins which escape by the kidneys and seem capable of destroying the nutrition of the renal epithelium and of introducing certain nephritis.

Disease also causes the appearance of abnormal coloring matter or of substance transformable into coloring matter, among which are found those that in urine take on a red coloration under the influence of perchloride of iron, as leucin, tyrosin, and all the imperfect excrementitious products which arise from insufficient elaboration on the part of the liver, and many other toxic substances.

Bladder. The bladder also plays an important part in this disease, as distension of the bladder starts sensory impulses which are conducted to the spinal cord through the posterior roots of the third, fourth, and fifth sacral nerves.

As soon as the bladder becomes distended the sphincter becomes mechanically dilated, and the retained urine is apt to undergo ammoniacal fermentation. This evil you can remedy somewhat by the use of the catheter as often as you think necessary.

Urine. Now, as to what may be discovered from the urine in conjunction with this disease.

According to chemistry, the great number of high or low colored urines or any alteration in urine are not original products, but result from decomposition of urea and uric acid, and the recomposition of these into new forms. The slightest disturbing influences seem capable of producing these changes. There is a wide difference between the physical character of sugar and that of oxalic acid, and between that of albumin and of uric acid, and yet they have so close a resemblance in their chemical composition as is generally sufficient in a single element. One of them should be sufficient to create another. Such attempts appear still more likely to be unsuccessful when it is considered that the morbid state of the urine is for the most part an effect rather than a cause of disease—the result either of inflammation or some structural lesion of the kidney, or some constitutional trouble.

Still oftener the case is some derangement of the digestive function, the primary assimilation of the food may be imperfect, and hence the whole function of nutrition becomes distorted.

Modes of detecting in ordinary practice the most important alteration of urine may not be misplaced here. A simple method consists of a gravimeter for measuring the specific gravity of fluids, a little blue and red litmus paper, a test tube, a spirit-lamp, and a vial of nitric acid.

The urine, if acid, will redden the blue litmus paper; if alkaline, it will turn the red paper blue. If neutral it will produce no change in either color. If there is no cloud in the urine a small quantity may be placed in the test tube over a spirit-lamp. Should a white deposit be formed it must be either albumin or the earthy phosphates. The addition of a drop of nitric acid will coagulate the albumin more firmly, but dissolve the salts. If the urine is very high colored, it may be supposed to contain either coloring.matter or bile or blood or an excess of uric acid. If blood be present, heat will cause the liquid to lose its transparency, as will also nitric acid; whereas heat will not effect the bile-pigment, and nitric acid will at once turn it green. If uric acid be the cause of the dark color of the liquid examined, the addition of nitric acid will precipitate it in the form of a brownish sediment. Urine made green by the addition of nitric acid contains coloring-matter of bile. Mucus in urine, if much, is generally owing to vesical catarrh or to enlargement of the prostate gland. Pus may be derived from inflammation of the pelvis, of the kidney, or from the lining membrane of any part of the urinary passages, or from abscess of kidney or prostate gland.

Muscles. The characteristics of muscles should be taken into consideration in this disease. In the first place, in a state of rest living muscle has an alkaline reaction; in dead muscle and in muscle in contraction, the reaction is acid, from potass, phosphate, and carbonic acid. Living muscle is to a certain extent translucent, extensible, and elastic; dead muscle is opaque, rigid, inextensible, and has lost its elasticity. This is due to coagulation of myosin. Why some animals remain lame and do not recover their normal condition of muscles in the posterior parts is due to a condition of fatigue, due either to insufficient supply of nutritive substance or to the accumulation of the products of decomposition, which produce a harmful action on the muscle-fibres. When a muscle contracts its arterioles dilate, more blood passes through the muscle, and as a consequence the removal of the increased carbon dioxide formed is facilitated. For instance, in this loss of power to these muscles, when contracted thus, muscles arising in one bone and inserted in another, will in their contraction either move both bones toward each other, or if one be fixed will draw the movable to the fixed bone. I think in these cases of azoturia the psoas muscles and abductors are as much in fault as the crural muscles, as they have their insertion almost perpendicular to the bones on which they act. As you know, in the posterior part of the horse four angles are met with: the hip-joint, the patella, hock, and pastern-joint. The pelvis is very oblique relatively to the trunk of the horse, the femur is obliquely connected with the pelvis, downward motion of the pelvis, a backward motion of the femur from the body weight being prevented by the abdominal recti muscles, whose tendons, inserted in the pelvis, by their tension, tend to draw the hip-joint anteriorly. The gluteal muscles arising from the ilium and passing over the hip-joint to the femur, act in the same direction, not only preventing forcing backward of the hip-joint, but in its contraction pressing the hip-joint forward, so the leg is like the femur, flexed, its obliquity being limited by the tension of the tendons of the extensor muscles which pass over the anterior surface of the limb.

Often a rupture of fibres in the psoas muscles will prevent an animal from getting up on his feet, and frequently in this disease these muscle-fibres are ruptured.

Skin. As to the skin and what assistance it gives in this disease in assisting nature to throw off the poisonous material.

The skin may be regarded as an organ supplementary in its action to the lungs and kidneys, since the skin by its secretion is capable of removing a considerable quantity of water from the blood, small amounts of carbon dioxide, and small amounts of salts, and in certain instances, during suppression of renal secretion, a small amount of urea.

The skin is thus an excretory organ serving to remove gaseous, liquid, and solid waste products.

It is also influenced by the mental condition, by medicines, by poisons, and under the head of renal secretion the activity of the skin as a secreting organ is, as a rule, supplementary to that of the kidney.

(To be continued.)

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS,
PRINCETON, N. J.

THE MARKING OF THE DOMESTIC ANIMALS, AND THE USE OF THE PATENT MARKING-TONGS. (By Branchli Vigoltengen.) As is well known, different tribes of Indians and South Sea Islanders adorn their bodies with tattooing-marks. Besides forming an adornment, many of these designs serve as the sign of race, family, or rank. Sometimes they are employed as a reminder of treaties that have been made or of particular events. Even to-day sailors and soldiers have themselves tattooed, mostly upon the arms, and this practice, according to the newspapers, has come into fashion lately among English lords.

Our domestic animals, especially the horse, were also marked in ancient times, either with a view to being able to recognize the animal again or to designate its breeding and family. This marking was largely practised by the Greeks and Romans especially to distinguish animals of different lineage, some of which had attained unusual celebrity.

Alexander the Great's celebrated horse, Bucephalus, is said to have received his name from an ox's head, which was branded upon his shoulder, as well as upon all other horses which were descended from a famous Thessalian stud.

At present the marking of horses on stud-farms and in the army is a pretty general practice, usually as a means of establishing the pedigree and facilitating registration.

Marking of animals, however, is useful not only for these purposes, but it plays a very important part also in the control of epidemics and boundaries.

According to the object and kind of animals the marking is performed in different ways. As a transitory mark, often the hair on some particular spot is cut off in the shape of a letter or figure, or less often burned off, or a mark is made with colored chalk, as is the case in many of our cattle-markets. But to make a lifemark, or at least one which will endure for a long period, the following different methods have been used:

1. Cutting out of pieces of skin.

2. Making incisions (nicks) in the ears and piercing the same.
3. Tattooing.
4. Branding and applying caustics.
5. Application of marks.

The first method—cutting out pieces of skin—is much practised on young animals in Hungary; a permanent scar remains at the place where the cut is made.

The second method—making cuts in the ears—is performed in many places and in many different ways. In Spain, mares which are no longer useful for breeding purposes are marked by cutting off a piece of the right ear. In France, horses which had been mustered out of army service used to be marked by splitting one of the ears so that they would be easily recognized by the experts who had to examine the new supplies. This practise was abolished, however, as the value of the animal was thereby deteriorated.

In Switzerland, those horses which have been rejected as unfit for cavalry service receive a nick on the outer edge of the left ear; the operation is performed with tongs.

Cattle, especially in the Alps, and sheep are often marked by making a nick or incision in the ear. Besides the nick on the edge, perforations in the ear itself are often made in sheep, and the mark has an especial meaning, according to the number and position of the nicks and holes. Boring the ear is much used in the case of swine.

Tattooing in cattle and sheep is performed on the internal hairless surface of the ears; in swine on the external surface of the same. By means of the so-called tattoo-tongs, which consist of numbers, letters, etc., composed of sharply-pointed needles, a mark is punched into the skin of the ear, and later coloring-matter is rubbed into the spot. Although this method has its imperfections, it is much used upon white swine.

The hot iron is used very often to make both a transitory and a permanent mark. In the first case, the mark is generally burned upon the hoof or horns; in the second, on the skin. The iron must be red-hot and applied quickly with light pressure. The foals in our country which are sired by the stallions belonging to the Swiss Confederation have the national cross burned upon the left rump.

The application of the hot iron brings several inconveniences in its wake. On the hoof of horses the marks descend with the growth of the hoof, and are finally cut away by the blacksmith. On the horns the marks are frequently rubbed off against various objects, so that in both cases it is necessary to renew them every few months. On the other hand, these marks not seldom become obliterated and illegible, particularly if the sign is a complicated one, consisting of narrow and intricate lines, for that reason the marking should be as simple as possible.

A further disadvantage of branding on the skin arises when the iron is too hot and is held on too long with strong pressure; the places branded run together, suppuration sets in, and makes an illegible and disfiguring scar. If the iron is not hot enough or the pressure too weak and irregular, the brand is not sufficient, and after a short time will be obliterated by the growing hair; a second branding on the same spot is not practicable, as the operator can seldom strike the same spot exactly. Burning, too, is a painful operation, and on sensitive animals not always to be carried out without danger.

Instead of a hot iron, caustics or corrosive materials have often been used, especially the so-called Vienna paste, which consists of equal parts of calcium and potassium hydrates. This was usually mixed with water, so as to form a thick paste, and then applied to the wooden model of the mark to be made, or the model was dipped into the paste and then pressed against the spot where the mark was to be made, the hair having been previously removed. The paste is best prepared by dissolving the calcium hydrate in three to five parts of alcohol and then adding the corresponding quantity of potassium hydrate. When the paste is applied it can be moistened with alcohol in order to dry it more quickly. It can also be applied with a brush. This method was formerly common in France, and is clean, regular, and less painful and dangerous than the hot iron; on the other hand, it is more troublesome, and sometimes a second application must be made.

Having named the different methods of marking and their advantage and disadvantage, we now turn to another method of marking cattle, namely, that of placing some sign upon the ears.

Branchli's first attempts were made with Alpine cattle. He used round pieces of tin stamped with numbers, which were fastened on by wire piercing the ear and clasped on the other side. In most cases the marks were lost while the cows were up in the Alps, the wire breaking by being rubbed against various objects.

Accidentally the "Rivet tubulaire double" (double tubulur rivet) came to his notice, which he at once decided to try as a means of fastening the marks. First of all a hole corresponding to the rivet must be made in the ear, and afterward the double rivet must be pressed together by means of a pair of tongs, so as to fasten the two disks on the ear. For this purpose he had a pair of tongs made which could first be used to make the hole and then to press the rivet together. He then experimented on different cattle. The result was various. In some cases the marks held, in others they fell out. There were two reasons for this: either the double rivet had not been pressed together tightly enough, and so parted of itself, or it had been pressed together too tightly. In the latter case it caused a severe inflammation, with suppuration and necrosis round about the hole, and the latter became so large that the back plate of the rivet slipped through.

To mark successfully the hole should be made with the tongs about 5 to 7 cm. from the apex of the ear and 4 to 5 cm. from the under edge, where the minimum circulation of blood is found. The puncture should be painted with tincture of iodine, creolin, or carbolic water, and the rivet put in some days afterward. The two plates of the rivet should not be more nor less than 1 cm. from each other. In the first case the rivet may come out; in the latter the ear is compressed too much. For the first week, or until the ear heals, it is to be bathed with creolin or carbolic water, and the marks should be carefully revolved. The marks he has had made of aluminium 1 mm. in thickness, and found it very satisfactory. —*Schwaizer-Archiv fur Tierheilkunde,* January and February, 1896.

REPORTS OF CASES.

THE INTRAVENOUS INJECTION OF ARTIFICIAL BLOOD-SERUM FOR THE RELIEF OF TOXÆMIA AND EXTENSIVE HEMORRHAGE.

By Thomas V. Simpson, V.S.,
YORKTON, N. W. T.

It is my desire to call the attention of veterinarians to the use of intravenous or subcutaneous injection of saline solution for the relief of toxæmia, whether it be due to specific microörganisms or to the introduction into the animal economy of poisons from some other source, and to its use in combating extensive hemorrhages from any cause. The most satisfactory results have been obtained in cases of collapse from hemorrhage, the artificial serum not only taking the place of the lost blood, but, according to some writers, having a decided hæmostatic action.

In grave septic infection or intoxication it is clearly indicated. When a large injection has been given for toxæmia there seems to be only very slight improvement for a few minutes; then there develops a strong rapid pulse, rigors, great uneasiness, and the sweat-glands and kidneys pour forth their excretions in large quantities. I have had the opportunity of using saline injections in but one case, and the improvement was so well marked and recovery so quick that I will here give full particulars.

A Clydesdale mare, weighing about thirteen hundred pounds, gave birth to a dead foal. The mare in her struggles had got her head and feet fast under the manger, and had probably been in that position for three or four hours when released by an attendant. She quickly got on her feet, and showed indications of fever. When I arrived I found that she had not ejected the fœtal coverings; pulse was 60 and temperature a little above normal. I gave her a uterine injection of creolin in solution.

This occurred in the morning. At night she was lying down; but pulse and temperature remained high. As she was in good condition I decided to try venesection, and accordingly did so to the amount of eight quarts. This appeared to give relief, the pulse now being quite soft, while before it was hard and full. Next morning I found her a great deal worse; pulse 100 and temperature away up (having broken my thermometer, I guessed the temperature by placing one or two fingers in her mouth). She was lying down and showing well-marked symptoms of septic metritis.

Prognosis doubtful. I then decided, with the consent of owner, to try intravenous injection of salt solution, and accordingly ordered five gallons of water to be boiled. In the meantime thoroughly curetted the uterus, after injecting creolin solution. Then she ejected all the creolin solution, and I gave her an injection of weak iodine solution, which she retained. At 11 A.M. I injected the saline solution into her jugular, taking about forty-five minutes to do so.

In the evening she looked a good deal brighter; temperature not much up, and pulse 80; passes clear urine three or four times an hour. Gave three more gallons of saline fluid intravenously, and clothed heavily to induce perspiration. Also gave another uterine injection of solution of iodine. She would frequently pass a small quantity of dirty-brown putrid matter from her uterus. The next day her pulse and temperature were the same, slight rigors and passage of putrid fluid still taking place. I then gave seven gallons of saline fluid intravenously. Through a little neglect the assistant allowed a little air to enter the injection-tube and thence into the jugular, causing no inconvenience other than increasing the heart's action from 80 to 100 beats per minute. She stood still during the entire operation, but ten minutes after the injection was completed she lay down and seemed in great pain, shivered for a few minutes, and then broke out into a profuse sweat. Breathing was labored and irregular, and the heart's action was 100 and strong. A great deal of brown fluid escaped from the uterus when she lay down. Urine was passed continuously for half an hour. Then she got up and ate a bran-mash. She continued to perspire and urinate freely till next day, and in two more days all the symptoms of toxæmia disappeared.

The solution I used was made by adding one teaspoonful of sodium chloride to a quart of boiled water. The fluid used in the Massachusetts General Hospital is highly recommended, the formula of which is 0.1 gramme (grs. jss) CaCl, 0.75 gramme (grs. x) KCl, to 1000 c.c. (qts. ij) of normal saline solution. The apparatus I adopted consisted of an ordinary household fountain-syringe, to which is attached the required amount of rubber-tubing. The end of the tubing fitted to an ordinary horse-canula. The vein is opened with a lance after being raised, and while still raised the canula is inserted. Care must be taken to see that no air is in the rubber-tube before injecting. Everything must be kept thoroughly scalded with hot water before using. The infusion of saline fluid is indicated in the following conditions: Serious hemorrhage from any cause or hemorrhagic collapse; septicæmia or uræmia in all infectious diseases in which there is a well-marked toxic condition of the blood, tetanus, azoturia, strychnine-poisoning, etc. It has been used with good results in acute pneumonia in man. In all forms of grave poisoning it is clearly indicated. When the infusion is used for the relief of a toxic condition of the blood it should be immediately preceded by venesection.

THE OPERATION OF ARYTENECTOMY ASSISTED BY THE ELECTRICAL LAMP.

By W. H. Arrowsmith, D.V.S.,
JERSEY CITY, N. J.

The operation of arytenectomy has always been considered difficult and unsatisfactory, because the cutting out of the arytenoid cartilages must be performed at a distance of from four to six inches from the opening in the trachea, the opening itself being almost filled up with the operator's hands, speculum, and instruments.

Being unable to see, the knife may slip or curved-scissors' points penetrate the soft parts, or the tenaculums or forceps grasp portions of the mucous membranes with the cartilages, and the tissues unfortunately injured which one wishes to preserve. When the cartilages are enucleated the effort to take up the mucous membrane properly with catgut suture becomes almost impossible, on account of the inability to see because of the small aperture and the frequent accumulation of blood-clots, and when the patient is let up, and the parts are healed, to your surprise and regret, the breathing is still imperfect.

During the latter part of December, 1896, the writer received at his hospital a valuable mare, five years old, to be operated on for ossification of the arytenoid cartilages, and determined to improve on the usual methods of performing arytenectomy, and succeeded after several attempts in having a practical electrician make an electric lamp, the globe of which was only one-fourth of an inch in diameter and affixed to the end of a hard black-rubber handle twelve inches long, through which passed two fine copper wires connecting with the platinum loop in the globe. At the other end of the handle was a thumb-press so placed that the light might be turned on and off at the will of the operator. The wires were then connected to three dry batteries, and we were prepared to illuminate the laryngeal cavity.

The mare was prepared, thrown, and placed upon her back; a tracheotomy-tube inserted midway down the trachea; the trachea was then opened just below the cricoid cartilage, by separating the muscles and cutting six rings of it, and the parts held open by two spoon-shaped blunt tenaculums, especially made for that purpose. The trachea between the upper opening and the tracheotomy-tube was filled with soft sterilized sponges, to which cords were attached and fastened outside, so that the sponges could not slip down into the cavity of the lung. The lamp was then inserted into the laryngeal cavity and the light turned on, when all the parts were distinctly seen, and each cut of the knife or scissors could be followed, and the forceps placed exactly where the operator wished; the whole ossified cartilages were enucleated and the mucous membrane taken up with catgut sutures and properly tied, each cartilaginous ring drawn together with catgut sutures and the muscles with silver sutures. The only interference with the operation was at times the accumulation of blood in the laryngeal cavity and on the globe of the lamp. The mare made a rapid and complete recovery, and three weeks later she could be speeded without any noise or emphatic breathing, and was then turned out.

EDITORIAL.

STICK AT IT, FELLOW VETERINARIANS.

ILLINOIS veterinarians, and those of Chicago in particular, have much cause to feel aggrieved at the actions of the chief executive of the State in appointing non-graduates to fill official positions in the veterinary service of the State and city. We have no disposition to discuss the merits or demerits of those appointed to these places; we have only to deal with the need in these times of every State and community to secure the best equipped and broadest-gauged men to be found in their respective communities. The rapid advancement of veterinary science, its place among the learned professions of the day, its daily increasing importance in the field of comparative and sanitary medicine, bring it, in every aspect of its work, in closer relationship to man, leaving no good reason for any other selection than the best educated and the most advanced members in the profession to properly fill such important positions. Surely none but those best equipped with the best college education, combined with practical experience, should be called to such places, and the profession is right in protesting and condemning appointments made on any other grounds. It should continue to protest, loudly and emphatically, and thus educate public sentiment to the importance of filling these places with educated veterinarians. Let the people know that the relations between man and the lower animals enter into the whole question of a pure food-supply, thus affecting in a very important aspect the welfare of both. Much is known already in these matters, but it is only a tithe of what there is to be studied and determined to guard against the dangers, suffering, and losses that are daily falling upon our people, and only the most advanced thinkers and best educated can plan for each State and city to do its part in this great work. Strengthen your numbers in this protest; reform your lines and agitate the matter until your protest is heard and answered. Your organizations are the channels for this work; the profession will sustain you, and journalism will aid you in this worthy fight for advanced veterinary education.

SOMETHING FOR THE CONSIDERATION OF FACULTIES.

INFORMATION has been placed in the hands of the editors of the JOURNAL, bearing upon the granting of diplomas to several students during '97, in which a very grave question arises as to how much actual time had been spent in the college granting the diploma, and how much time should have been allowed for the time spent at other colleges. We believe that this matter of allowance of time should be one of the most important points to be taken up at the next meeting of the Association of Faculties; and some fixed, definite plan should be devised by which schools should be guided in receiving their students and in granting them an allowance for time spent in other colleges. Much criticism is being indulged in, much surprise expressed, many inquiries are being made, bearing upon these points, and, unless the Association of Faculties can arrive at an understanding, there is danger in this direction that promises to retard the advance of higher veterinary education.

A PECULIAR EXPERIENCE.

UNDER the head of correspondence will be noted an important communication bearing upon a new aspect of the use of tuberculin as a diagnostic agent. While the fact of two cases arising at the same time, under identical circumstances, may seem more than a coincidence, it seems strange that no similar experiences have been recorded incidental to the testing of thousands of herds. Further, there has seemed no good reason at any time why there should be any precautionary advice given as to the use of the milk during the testing-period, for the injection of a sterilized product, free from germ-life, would make the same superfluous when considered in connection with the results all over the world, bearing testimony to the freedom from danger to mankind or the animals tested with tuberculin.

TENNESSEE JOINS ILLINOIS.

TENNESSEE seems to be in the same situation as Illinois in the recognition of the value of scientific veterinary service. After obtaining an appropriation of $2500 for this work, a salary of $600 is awarded, which will secure only the most meagre service in a State covering so wide a territory, and which frequently has to deal with serious animal scourges. Work of this kind that cannot be done properly, and with some hope of adding to our knowledge of sanitary work, had better be left undone. Equally true is it that a mere political appointment of meat-inspector for Nashville, the ignoring of two competent graduates indorsed by the medical profession of Nashville, and the giving of this place to an uneducated non-graduate, are destined to provoke such severe criticism in these days—not to speak of the inefficient way such work is likely to be done—as to retard and nullify all the efforts made in these directions to free our people from these now well-known dangers, and thus bring down on the heads of these people trusted with authority the execrations of an injured public that they are not likely to enjoy. Strengthen public sentiment in Tennessee, and the battle for better conditions can still be won.

A MUCH-NEEDED ORGANIZATION.

MANY creditable representatives of the veterinary profession of St. Louis, Mo., have organized a local association which we are sure, from the selection of its officers, will be a very beneficial one in matters of interest to the profession, and will be the cause of enlightening public sentiment on such matters. The JOURNAL extends to the organization its best wishes for a successful career.

GOVERNOR BLACK, of New York State, has signed the Administration Bill of the Empire State, in which occurs the following important announcement: "No tuition fee shall be required of students pursuing the regular veterinary course who, at the time of admission to the State Veterinary College, are legal residents of this State." This offer to prospective students, residents of New York State, will make it a very grave matter for other colleges which are almost wholly dependent for support on the fees they receive, as in many instances, in both the New York City schools, which receive a large number of students from both city and State. We take it this concession has been made inasmuch as a fixed appropriation referred to in a former number of the JOURNAL has been placed annually at the disposal of the New York State Veterinary College for the yearly expenses.

INSPECTING veterinarians of the Boston Horse Show are coming in for a good deal of scoring on account of their holding up a number of the horses in the ring for suspected unsoundnesses.

WE announce on another page of this issue the publication of several important works by the well-known publishing house of William R. Jenkins. The books announced are very important ones, and will no doubt be gratefully received by the veterinary profession, especially by the faculties of our colleges.

Bremen, Germany, has issued orders that all horses entering that port must be submitted to a veterinary examination, and the fee for this service must be paid by the consignee. This system will, no doubt, lead to a closer inspection of these animals before shipment from American ports.

MARRIAGES.

Dr. G. Howard Davison, of Altamount Stock Farm, Millbrook, N. Y., was married Wednesday, April 25th, at St. Bartholomew's Church, New York City, to Miss Marion M. Cheseborough, of the latter city.

NECROLOGY.

Herr Carnatenn Harms, Professor of the Veterinary School of Hanover, author of *A Treatise on Veterinary Obstetrics* and *The Diseases of the Ox and their Treatment,* a graduate of the Hanover School, with additional courses at Berlin and Alfort.

CORRESPONDENCE.

OUR PROFESSION.

Editor Journal Comparative Medicine, etc.:

In the December number of your excellent Journal I had the pleasure of reading an article from the pen of F. W. Hopkins, D.V.S., of Kansas City, Mo. It was entitled "Our Profession," and I need not say was ably discussed, and reflects much credit on the writer; at the same time it calls to mind the wonderful advancement which the veterinary profession has made during the last decade. It is only in its infancy, however, and the question which very naturally arises just now, and one in which all who love the profession are deeply interested, is, What will be the standing of our noble profession at the expiration of another ten years? The future, to say the least, is full of bright prospects, and doubtless will not disappoint the most sanguine expectations. The great educational privileges so liberally provided by the United States Government for the free education of the masses give our young men a great opportunity to obtain a first-class preliminary training previous to entering on a college course, and the many excellent facilities we have at hand for "teaching the young idea how to shoot" give our young enterprising Americans, many of whom are naturally talented and energetic, opportunity to become eminent in this particular branch of science, which eventually must place us in the first rank as veterinarians—no longer second to any nation on top of the globe. We can justly feel proud of the great progress which has steadily marked our onward march, and John Bull, who has never failed to express his utter contempt for any enterprise that he is not the boasted instigator of, must begin to realize that American enterprise for the advancement of veterinary science is fast getting the upper hand of him, and that his American cousins on this side of the big pond are at least worthy of the respect due all who are properly educated in the veterinary profession. It is only a short time ago that our country was overrun with charlatans and quacks, that it is not necessary to say, were a disgrace to a prosperous and civilized nation, as well as a menace to the comparatively few educated veterinary surgeons who were in this country at that time. Many of us to-day look back and wonder why some more determined effort was not made to root them out earlier; but what was done in the early history of this country was too premature to prove a success.

If I remember right, a Boston veterinary institute was first formed by Dr. Dadd, and later on Bowler, of Cincinnati, and Jennings, of Philadelphia, organized a veterinary college; but all those well intended schemes fell through for want of the necessary support, and for no other reason than that the American people had not been educated up to the standard of realizing the absolute necessity of men being educated so as to prescribe scientifically for the lower animals as well as for the human family. But the boom came at last—*tempora mutantur, et nos mutamur in illis.* The necessity for this change was apparent. Everything was ripe for it, and that which gave impetus to the grand boom was the organization of the Illinois State Veterinary Medical Association, which occurred May 22, 1883. Previous to that happy event a gentleman of our city, by the name of Daniels, commenced the publication of a monthly journal in the interest of veterinary science, which was known as the *Chicago Veterinary Journal.* It had a wide circulation, and soon became very popular among all lovers of the horse. For some reason, however, its career was brief, but it lasted long enough to arouse the apparent apathy of the veterinary profession to a sense of duty; at the same time it stimulated the young horsemen of our nation to become veterinary surgeons, and it is only right to give Mr. Daniels due credit for the active part he took in the grand movement which followed. A number of the other States soon followed the good example set by the State of Illinois, and to-day there are but a few States in the Union that have not a well-organized veterinary association.

Soon after this general waking veterinary colleges began to spring up, and like the wild flowers that decorate our vast prairies in the spring-time and impregnate the atmosphere with their inspiring fragrance, they have increased in number very rapidly, so much so that it will be remarkable, indeed, if some of them, like the flowers of spring, do not wither, or, rather, drop out of existence; but there will be enough left to continue the good work which has been so ably commenced. We have no less than seventeen well organized veterinary colleges in the United States to-day, all fully equipped with the modern improvements of the age and the necessary equipments for instruction of all who desire to become qualified members of the veterinary profession. All of these colleges are turning out more or less new men every year to swell the ranks of the large army of veterinary surgeons which, according to Dr. Hopkins's estimate, already numbers in the aggregate something in the neighborhood of five or six thousand full-fledged veterinary surgeons; and, perhaps, it will not be considered out of place here to ask the question, Is there any danger of this enterprise, like some other enterprises of our country, suffering from overproduction? It is a question that I must leave for some one else to answer, and in the meantime suggest that it might be well to petition Congress to enact a law to prohibit any man holding the title of M.R.C.V.S. from landing on American soil; or, perhaps some who are more deeply interested may consider it prudent to commence negotiations with some of our distant neighbors on the other side of the Atlantic Ocean with a view of forming a contract to furnish them with some of our young American veterinarians who, no doubt, will do justice to the cause, wherever they go. But this will answer for a joke on some of our worthy adversaries across the big sea, who must feel jealous of our rapid growth; but we can assure them that there is no danger of any of our young army invading European territory. We have plenty of work for our experts to do at home. The field we have to work in on this great American Continent offers such inducements to the student of pathology that it is absolutely inexhaustible, and our veterinarians, many of whom have already rendered valuable services by coöperating in the renowned field of literary adventure and scientific research for the advancement of veterinary science, will find ample room to practise their chosen profession in the future as in the past. It is only the commencement of a new era, as we might say, in the history of American veterinary science, which signifies much for the near future, and the veterinary profession, especially the active members who have worked so hard to stamp out quackery and raise the profession up to the present standard, have good reason to rejoice over the grand triumph which has crowned their labor, and the people should feel thankful for the protection it affords the live-stock industries of our country.

P. S. I should have been glad to have continued this article by making some brief comments on Dr. Hopkins's amusing remarks in regard to the difficulty so often experienced by us all in forming a correct diagnosis of the boss—I presume he means the "stable boss"—whom we must all admit it a critter of very peculiar instincts, somewhat inclined to be mulish and mule-like—stubborn—self-opinionated, if you please; but as I fear that I have already occupied too much of your very valuable space, I must defer it to some more opportune time, and with your consent will later on have something to say on the subject.

JOS. D. TUTHILL, M.D., V.S.

CHICAGO, ILLINOIS.

EDITOR JOURNAL OF COMPARATIVE MEDICINE, ETC.

DEAR SIR: I wish to ask the question whether any one has seen a bad effect produced on a consumer of milk taken from cows just tested with tuberculin? My reason for such a question is a recent experience.

April 12th and 13th I tested Mr. Lippincott's herd of cows, registered Guernseys, in fine health (a herd of tuberculous Jerseys that were housed in the same barn had been killed a year before). After taking the temperature the next morning and finding no reaction, I declared them free from tuberculosis, and thought nothing about the milk. The manager of the farm had an infant about two months old which had been nourished by the milk; a farm-laborer was also similarly situated. After feeding the milk to the babes that day both were taken sick at night, with great pain and profuse diarrhœa, a very green discharge from the bowels; the family physician was sent for, and told both families that it was the tuberculin that produced the trouble, also that I should have cautioned the families not to have used the milk. Now, I have used tuberculin in many cases, and know the milk was used, and I have never seen such results as in this case; and yet I think there might have been something else that might have caused it. I wrote to the family physician, asking for a report of the cases and his opinion direct, but as yet he has not answered it. The infants had been healthy before, and have not been fed milk since, and have no more trouble.

Very truly yours, W. H. RIDGE.

TREVOSE, May 10, 1897.

P. S. Since the above was written a letter has been received which I deem best to publish in full.

MY DEAR DOCTOR: Yours at hand, and contents noted. I did not intend to *criticise* you in the least; indeed, did not know it was you that had fixed the cows, and seek to apologize for same, as it was purely unintentional. But the fact remains, *it* or something else—and the something else seems to be wanting, as the children had no other food but the cow's milk—produced indigestion, followed by vomiting and diarrhœa, which were persistent as long as we used the milk, and subsided instantly when the food was changed. Now, I do not say positively it was the milk, but it seemed a strange coincidence: two cases at the same time and under the same circumstances. What do you think? Very truly yours,

J. SIBBALD.

FOX CHASE, May 11, 1897.

[*Exact copy of letter received by an agent, Arkansas and Choctaw Railway.*]

GOODLAND, ARK., July 31, 1896.

MR. J. W. AMERMAN,
Mgr. Arkansas & Choctaw Ry. Co., Texarkana, Texas.

DEER SUR: Boute the 4th the trane struck mye bool which was in mi pastyre at 39 mile post; he is kut so bad I think he will surly di. i have dun ivry thing i cood to save him, don't think I ken hardly. Wun of his hawns is tuk of, and he is kut in his belly a site to see, hit tuk of a peas uf hyd bout wun feet squair between his nebul and pekir hoal and has tuk out boath his seads and most of his bags levin not enuf to be of eny use hardly. i fere it is no chants fur him to git well. He curtainly is onqualified to atkt as a bool eny more. i tell you he is no better than ded and i wish you wood make your section boos repot him as ded an pay me fur him as an animel kild on the rale rode. he is curtainly onqualifiede for a bool an is tu noked up for a stere. and is tu tuf an ranke fur befe. Please sur hav him repoted ded an pay me fur him as a valuable beest. Yors truly,

JOHN JACKSON.

P. S. Donte fale to repote him sur and repote him a ded bool in good survic at boolin time.

P. S. 2. i sent this in haste by passenger neebor Sam Jones to the city. Rite me to Goodland sune as possibul.

LEGISLATION.

Pennsylvania. A bill has been introduced appropriating $50,000 for the investigation of contagious and infectious diseases of domestic animals. This bill has been referred to the Appropriation Committee, with strong indorsements and general approval.

A bill to prohibit the importation of diseased cattle into Pennsylvania has just passed first reading in the Senate, and is on the calendar for second reading.

The bill requiring all animals entering the State to replenish our dairies to have been tested and pronounced free from tuberculosis, or to remain at the point of entry sufficient time to allow testing with tuberculin, has passed both Houses and been signed by the Governor, and goes into effect January 1, 1898.

New York. The lower branch of the Legislature passed the bill forbidding the sale of horseflesh for food.

The State Board of Health has obtained an appropriation in the annual supply bill of $15,000 for the continuance of inspection of animals for tuberculosis; $7500 for glandered horses, and in the Supplementary Supply Bill $10,000 additional was appropriated for cattle inspection, making in all $25,000 for this work in the Empire State. Later information reaches us that this amount was cut out of the Supply Bill by the Governor.

Of the dozen or more bills placed before the Legislature of the Empire State in which the veterinarian was interested directly or indirectly, every one was lost by defeat or allowed to sleep in the hands of the various committees. No legislation was secured, except that in the way of an appropriation to the State Board of Health for further investigation of bovine tuberculosis.

National.—Army legislation looking to the recognition of the veterinarian has made no progress in the present Congress, owing to the fact that, in the House, Speaker Reed has made no committee appointments. A new bill was introduced, but remains in this position, though the promise of its passage is very flattering should the opportunity arise.

Tennessee.—This State seems to be very much in the position of Illinois relative to proper recognition of the veterinary profession in the public positions of the State. The Legislature appropriated $2500 for veterinary sanitary work there, and the State decided to allow but $600 of this amount for the State veterinarian. This salary was such as to remove from the list of candidates for this position the late State Veterinarian, W. C. Rayen, but was subsequently accepted by Dr. Schiebler. It seems as though this amount would allow but a very small amount of work to be done by this State official. In the city of Nashville the City Council created the office of city meat inspector, to be elected by the city Board of Health. A non-graduate, Dr. Collins, has been selected for this place in the face of the application for the position by two well-known graduates—Drs. T. W. Scott and Joseph Plaskett—and it seems as though the appointment was made solely on a political basis, the good work to be done by such an official being a secondary consideration. Such results are often due to failure of veterinarians to unite in their work and to the lack of proper agitation of the duties that fall to the lot of such officers; hence the results that follow. We would advise the veterinarians of Tennessee to use their State Association so far as possible in correcting these conditions by better education of the public to the importance of these places and the necessity of better combination to insure good work.

Colorado.—The bill destined to regulate the practice of veterinary science and to provide for a State veterinary examining board failed of passage, owing to a wrangle that the Legislature got into over other measures. A bill was passed by the House and Senate, but vetoed by the Governor, in reference to the inspection of sheep, which would have caused a suspension of the present quarantine regulations concerning "scab." A bill compelling the examination and qualification of horseshoers before allowing them to continue business in the State was carried through and signed by the Governor, and now becomes a law. The appropriation for the State Veterinary Sanitary Board, along with other departments of the State Government, was scaled down one-third. .

Iowa.—Governor Drake, of Iowa, sent a special message to the State Legislature, asking the passage of the law requiring State and county officers to coöperate with the Bureau of Animal Industry in stamping out hog-cholera. An experimental district will be established and thorough sanitary measures adopted.

Great Britain.—The British Government is considering a measure known as the Marks bill, whose object is to have all meats, both foreign and domestic, marked and sold for what they are; dealers in foreign meats to be registered. Americans products need fear no shrinkage in their sale from such a law.

Minnesota.—The Legislature dealt quite generously with the veterinary profession during the past winter. We were so fortunate as to secure a revision of the laws dealing with infectious diseases of animals, and an increase of $3000 annually for this work. This is especially gratifying in view of the stringent financial situation. The State Board of Health, veterinarians, and stockmen of the State united in this effort and put their estimate for the needed increase at the smallest amount for which they believed the work could be done in a satisfactory way, and the Legislature generously gave just what was asked.

The law was revised on four essential points. 1. We have secured a rewording of several sections that were generally misunderstood by parties to whom circulars were sent in the course of State Board of Health work. 2. The authority for quarantine and the quarantine regulations are made more extensive and specific. 3. The annual appropriation increased $3000. 4. Fines were reduced so as to read "not more than $100 nor less than $25," in place of the previous reading, "not less than $100 nor more than $500." Under the new law each day's continuance of offence constitutes a separate offence and entails a repetition of the penalty. This change in the fines was made in order that suit could be brought in a justice's court, and the fines would be so moderate that the courts would be more willing to impose them. (A copy of the law is sent herewith.) There are several points of this law worthy of note—*e.g.*, the reading in section 2: "Any person who knows of or has reason to suspect the existence of any contagious or infectious disease in any domestic animal shall forthwith give notice thereof," etc. Again, in section 8: "The State Board of Health, or any duly authorized agent thereof, may examine or cause to be examined, under oath, all persons believed to possess knowledge of material facts, etc." In section 9: "Any person violating any provision of this Act, or any rule or regulation made by the State Board of Health, or any local board, or any order made by any such board, under the authority thereof, shall be guilty of a misdemeanor, etc." Section 10 gives an owner full authority to post notices on his farm during the prevalence of any contagious disease (with especial reference to hog-cholera), forbidding persons to enter, etc., and makes it a misdemeanor, punishable by fine, for any person not authorized by the State or local board of health to violate such notice. This gives owners authority to issue private quarantine to protect their herds in case the local boards are negligent or for any reason fail to give desired protection.

We have also secured an entire revision of our former Veterinary Practice Act. In this we have gained several important points: First, the Board of Veterinary Examiners shall hereafter consist of graduates of legally authorized and recognized veterinary colleges. Second, no person may hereafter commence the practice of veterinary medicine in this State who has not graduated from a recognized veterinary college. A non-graduate cannot even appear for examination hereafter. The graduate must not only submit his diploma, but must also pass any examination that may be required by the State Board. This Act takes effect from and after its passage.

When the former bill was passed the first point mentioned was neglected, and as a result we have been in the strange position of having a non-graduate upon the Board of Veterinary Examiners —*i.e.*, a non-graduate to sit in judgment upon the diplomas and qualifications of graduates who make application for certificates.

BOOK REVIEWS.

DISEASES OF THE DOG AND THEIR TREATMENT. By PROFESSOR GEORG MÜLLER, Professor at the Veterinary School of Dresden. Translated, revised, and augmented by ALEXANDER GLASS, A.M., V.S., Lecturer on Canine Pathology at the University of Pennsylvania. With ninety-three illustrations. Published by W. Horace Hoskins, Philadelphia, 1897.

THE translation of Professor Müller's exhaustive work on *Die Krankheiten des Hundes* marks the beginning of a new era in canine pathology for English-speaking veterinarians. Heretofore there has been a great dearth of reliable information upon this subject. It is true that a number of books upon diseases of the dog have been published, notably those of Hill, Steel, and Mills; but these works are not of a thoroughly scientific character. They are written for the layman as well as the veterinarian, and are little more than compilations of the popular knowledge of these matters. They do not consider the science of the subjects of which they treat in the thorough-going, essential way that the diseases of other animals have been considered. The work translated by Dr. Glass is in all respects a scientific work, and while it will, no doubt, be of much value to many intelligent laymen, it is not written for them, but it is purely a professional work, and is based upon the best and most recent developments of modern physiology, pathology, bacteriology, and therapeutics, supplemented by the extensive practical experience of the author and translator.

The book differs so materially from anything that has previously appeared that it seems well briefly to review some of its excellent and unique features. The first chapter is on General Examination, and in the short space of ten pages describes the clinical significance of the general symptoms that dogs present when suffering from various diseases. The following chapters are on diseases of the various systems and organs, the infectious and constitutional diseases and surgical conditions. Each chapter is preceded by a brief general review of the points to be considered in the examination of the organs or parts of the body discussed. In many cases, as in the chapter upon Diseases of the Digestive Tract, Diseases of the Respiratory Organs, Diseases of the Nervous System, Diseases of the Circulatory Apparatus, etc., the preliminary discussion includes the topographical anatomy illustrated by very clear and instructive diagrams and pictures.

The methods to be employed in examining the various parts of the body are also considered in great detail, and include the use of various instruments, microscopic, physical, and chemical tests. Each disease is considered minutely in respect to its general characteristics, its etiology, pathological anatomy, clinical symptoms, diagnosis, prognosis, and treatment. Under the first heading the distribution, general prevalence, and importance of the disease are spoken of. The etiology is considered in the light of modern medicine, and numerous valuable points are brought out in this connection that have not previously appeared in English writings. The pathological anatomy is of the most practical character, and every point that is mentioned can be applied to advantage by the clinician. The clinical symptoms are considered in such great detail that it is evident that the author is not only a careful clinician and pathologist, but a comparative psychologist as well. The treatments recommended are in no case of the indefinite "shotgun" variety, but are all carefully considered and based upon an accurate knowledge of the nature of the disease and the actions of the various drugs employed. Much stress is laid upon hygienic and dietetic treatment. The chapter on Diseases of the Bones and Articulations is especially complete and valuable, and contains a great deal of new material. To illustrate the thorough manner in which these subjects are considered a mere catalogue of the subdivisions of this chapter is here reproduced: rhachitis, diseases of the joints, inflammation of the joints, acute synovial inflammation of the joints, chronic synovial inflammation of the joints, purulent inflammation of the joints, rheumatic inflammation of the joints, disease-producing malformation of the joints, injuries to the joints, wounds of the joints, contusions of the joints, distortions of the joints, luxation of the joints, dislocation of the lower jaw, dislocation of the elbow, dislocation of the patella, diseases of the bursa mucosa, muscular rheumatism, fractures of bones, amputation and exarticulation of bones.

The chapter on Hernia is divided as follows: description of hernia, reducible hernia, irreducible hernia, inguinal hernia, method of castration, sarcocele, hydrocele, umbilical hernia, femoral hernia, perineal hernia.

The chapter on Diseases of the Eyes is divided as follows: affections of the eyelids, closure of the eyelids, entropion, ectropion, diseases of the conjunctiva, inflammation of the conjunctiva, catarrhal ophthalmia, purulent ophthalmia, diseases of the sclerotic coat of the eye, inflammation of the sclerotic coat, keratitis superficialis, keratitis profunda or parenchymatosa, abscess of the sclerotic membrane, ulceration of the sclerotic membrane, dermoid of the cornea, pterygium, injuries to the cornea, diseases of the lens, cataract, diseases of the sclerotic membrane, of the nervous portion of the eye, and of the vitreous humor, inflammation of the iris, purulent inflammation of the eye, dropsy of the anterior chamber (glaucoma), diseases of the optic nerve and retina, prolapsus of the eyeball.

The Diseases of the Skin are discussed in a very thorough fashion; particular attention is given to those caused by animal parasites.

The book is characterized throughout by the absence of speculation in reference to unproven theories and the practical application of all that is known in relation to the subjects of which it treats. Many formulæ are printed which have been used by the author in his work as director of the clinic for small animals at the Dresden Veterinary School, and by the translator in connection with his duties at the Veterinary Department of the University of Pennsylvania and in his extensive canine practice.

The publisher is to be congratulated upon the excellent appearance of the work that marks his entrance into this new field. It is well known to the veterinary profession that it is his habit to do with great thoroughness everything that he undertakes, and they will, therefore, not be surprised to find this book as engaging in its general appearance as could be produced by any publisher who had devoted his life to the business. It is but fitting that the advent of a work destined to remain an authority for years to come, and the inauguration of a new publisher of veterinary works, should occur simultaneously and under such auspicious circumstances. May both have the prosperity they so richly deserve.

LEONARD PEARSON.

HANDY MANUAL OF VETERINARY MEDICINE, now in process of preparation under direction of M. Stalker, V.S., Dean Veterinary Department, Iowa State College, by G. E. Nesom, B.Sc., and Dr. R. A. Craig. This reference manual is designed for veterinarians, students, stockmen, and farmers, and is to appear in a few weeks. It is to contain handy reference on anatomy, dentition, physiology, hygiene, diseases and remedies, classified dose-table, surgery, obstetrics, poisons and antidotes, government rules for stock and meat-inspection, practical stock-feeding, history of domestic animals, list of State colleges having courses in veterinary medicine, State laws regulating the inspection of animals affected with contagious diseases, and much other useful information.

THE well-known publishing house of W. R. Jenkins, New York City, announces the issuance of *A Text-book on Veterinary Ophthalmology*, by George G. Van Mater, M.D., D.V.S., Professor of Ophthalmology in the American Veterinary College; also the early publication of a work by W. E. A. Wyman, Professor at the Clemson Agricultural and Mechanical College, South Carolina, on the *Clinical Diagnosis of Lameness in Horses;* also *A Compend of Veterinary Obstetrics*, by W. H. Dalrymple, M.R.C.V.S., of New Orleans, La., late professor in the Department of Veterinary Science in the Louisiana State University and A. and M. College; also *Exercises on Veterinary Research*, by C. J. Cadiot, translated by A. Bitting, M.D.V.S., with notes by Professor A. Liautard; also another work on *Practical Toxicology*, for professors and students, by Professor Dr. Rudolph Cobert, translated and edited by L. H. Friedberg, of New York, Professor of Chemistry and Toxicology in the American Veterinary College.

The Veterinary Blue Book. Unavoidable circumstances have delayed the publication of the *Blue Book,* now in the hands of the printer, but it will be published in June. Names sent in the first week of June, if not in time for the *Blue Book,* will be in time for the addenda. Persons desiring their names inserted should send their address, telephone number, and office hours. For further information, address R. S. Huidekoper, No. 154 W. Fifty-seventh Street, New York City.

The publication of this book will be an innovation not before attempted in veterinary circles, and we hope it may ultimately lead to the publication of a directory of the entire veterinary profession in North America.

COMMENCEMENT EXERCISES.

KANSAS CITY VETERINARY COLLEGE.

THIS college closed its session on Wednesday, March 31st. The exercises were held in the College Hall, and proved a very pleasant innovation, as they were confined to those who were specially interested in the school and this year's graduates.

The following members of the class of '97 received the degree of the college: George R. Conrad, Robert B. Leeper, James M. Moore, Frank A. Pouppirt, John B. Wright; and L. E. Day, V.S., and H. Ovens, V.S., who had attended the post-graduate course in milk- and meat-inspection were granted evidence of having pursued the same. The exercises were completed at the Savoy Hotel at 8.30 P.M., where, after presentation of the diplomas by Dr. C. J. Sihler, the class response was made by Dr. R. B. Leeper; the toast of the Kansas City Veterinary College by Dr. S. Stewart; "My Friend, the Quack," Dr. S. L. Brooking; "One Year in Practice," Dr. S. Sheldon, Lathrop, Mo.; "The Veterinary and Medical Professions." Dr. L. Rosenwald; "The Veterinarian under Cross-examination," Mr. Frank Sheridan; "The Veterinarian's Place in Society," Dr. R. H. Harrison. The toastmaster of the occasion was Dr. I. J. Wolf, who filled well the place assigned him.

All enjoyed the excellent repast provided for those who were privileged to be seated at the table.

SOCIETY PROCEEDINGS.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE regular monthly meeting of the Association was called to order by President Huidekoper, at eight o'clock sharp on the evening of April 7, 1897, at the Association rooms in the Academy of Medicine. On roll-call the following members responded: Drs. C. C. Cattanach, J. S. Cattanach, J. S. Cattanach, Jr., Delaney, Ellis, Farley, Gill, Huidekoper, Hanson, Loomes, O'Shea, and Robertson. The minutes of the previous meeting were read and approved.

The Board of Censors (Dr. Gill, Chairman) reported favorably on the application for honorary membership of Dr. W. Herbert Lowe, of Paterson, presented by members Ellis, Hanson, and Ryder. Moved and seconded that the report be accepted and that Dr. Lowe be declared an honorary member of the Association; carried.

Dr. Farley reported a case of injury to a mare by the introduction of a broom-handle into the vagina and uterus, evidently by malicious persons, which resulted in death soon after being seen by him. The Doctor reported the case, when seen, to the American Society for the Prevention of Cruelty to Animals, but no notice was taken of it by that society. Moved and seconded that Drs. Farley, Gill, and Hanson act as a committee of three to report at the next meeting on the case referred to by Dr. Farley and on the relations of the veterinarian to the Society for the Prevention of Cruelty to Animals; carried. Reports of other interesting cases by members, and free discussions followed, resulting in a motion by Dr. Delaney, seconded by Dr. Hanson, that Dr. Robertson read a paper, at the next meeting, on the transmission of diseases to the cat: carried.

The Judiciary Committee (Dr. O'Shea, Chairman) requested the Association to wait for a complete report of the legislative affairs until the next meeting, and stated that he feared the jury bill was doomed. He also read a communication from the Association's counsel relative to the Mulvey case, in which the counsel advised communicating directly with the County Clerk, as the error in allowing Mr. Mulvey to register is evidently his. Moved and seconded that the report be accepted; carried.

The Chair reported for the Publication Committee that all the details of the *Blue-Book* had at last been gone over, and that it was now ready for the printer. Moved and seconded that the report be accepted; carried.

The proposed amendment to the By-Laws was then read by the Secretary. Moved and seconded that the amendment be laid on the table; carried.

Moved and seconded that the meeting adjourn; carried.

THE regular meeting of the Association was called to order, May 5, at 8.45 P.M., at the Academy of Medicine, with the President, Dr. Huidekoper, in the Chair.

The following members responded to roll-call: J. S. Cattanach, Delaney, Ellis, Farley, Gill, Huidekoper, Hanson, Loomes, MacKellar, and Murphy.

The minutes of the previous meeting were read and, after slight corrections, approved.

The Board of Censors (Dr. Gill, Chairman) reported that the board had no business in hand.

The Committee on Dr. Farley's case and on the relation of the veterinarian to the American Society for the Prevention of Cruelty to Animals begged to report progress, as they had not had a meeting. Moved and seconded that the report be accepted; carried.

President Huidekoper then requested Dr. Cattanach to take the Chair, while he gave the members a very interesting and instructive "talk" on the subject of "castration standing," giving it as his opinion that the operation could not be properly performed standing, and exhibited specimens of testicles improperly removed by an operator in the standing position. A very interesting discussion followed by the members present.

President Huidekoper reported for the Publication Committee that they expected to have the *Blue-Book* out this month. Moved and seconded that the report be accepted; carried.

Dr. Gill read a communication from Dr. Salmon on the "Pasteur Monument Fund." Moved and seconded that the Chair appoint a committee of three with power to act on the communication from Dr. Salmon; carried.

Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS, D.V.S.,
Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THE March meeting was called to order by President John R. Hart, on the evening of the 9th, with the following members of the profession present: Drs. W. W. Martin, H. D. Martein, J. D. Houldsworth, Clarence J. Marshall, Thomas B. Rayner, W. L. Rhoads, Charles Lintz, W. S. Kooker, W. H. Hoskins, John R. Hart, Charles T. Goentner, F. S. Allen, and a number of students from the Veterinary Department of the University of Pennsylvania. We also had the pleasure of having with us Professor Marks, of the Adirondack Valley, and Mr. S. C. Damond, of Massachusetts, and, as speaker of the evening, R. A. Pearson, Assistant Chief of the Dairy Division of the Department of Agriculture, Washington, D. C.

After the calling of the roll, reading and adopting of the minutes of the February meeting, the regular order of business was suspended that Mr. R. A. Pearson might read his paper on "Sanitary Milk." This was followed by a paper by Dr. Leonard Pearson, on "What Professor Bang's Work Teaches." [The papers have been printed in full in the April and May numbers of the JOURNAL.]

Dr. Pearson having been called to Harrisburg, his paper was read by the Secretary. After its reading, discussion was entered into upon both papers. After the discussion a hearty vote of thanks was extended to Dr. R. A. Pearson, when adjournment was in order.

The April meeting was called to order by Vice-President James B. Rayner, upon whom the presidential duties now rest, through the irreparable loss to the Association by the death of our late coworker, esteemed fellow-member, and beloved President, John R. Hart.

Though the attendance at this meeting was light in number, those who were there brought hearts full of sorrow. Individually realizing the loss to each of us was but a fraction of that sustained by the profession as a whole, and this could be but a unit of the loss to the bereaved family of our worthy colleague who, as a reward for his earnest, honest work here, was taken to a brighter, happier home. Though the majority of those present had few words to express their sorrow, this was due to their having realized the loss to the profession and themselves individually, mingled with the feeling that we collectively must be a long time doing what he might have done alone, knowing that it would take a long time for his most earnest friends and coworkers to close up the gap left by his moving onward and upward to a new life. Every one seemed impressed with his broad-minded, full-hearted, and conscientious life; a life which could well be held up as an example to every young man; a life which was not a theory, but a living proof of what could be done by an honest man. It has been said that an honest man was the noblest of God's handiwork, and surely if such exists or has existed, Dr. John R. Hart was of the number, and we cannot say more of him than that which we hear from every side, among all classes, and all walks of life —" He was an honest man." Drs. W. H. Hoskins, F. S. Allen, and W. S. Kooker were appointed as a committee to draft resolutions upon the death of Dr. John Hart.

Some voluntary contributions were received toward the floral emblem sent to the family of our late President as a mark of sympathy, sorrow, and respect by the K. V. M. A., and it was orderd by a vote of the Association that the balance be paid out of the Association funds.

The May meeting was called to order by Dr. Thomas B. Rayner, as Vice-President James B. Rayner was not present. The members of the profession in attendance were: Drs. Charles M. Cullen, H. P. Eves, H. D. Martein, W. H. Hoskins, Charles Lintz, John W. Adams, Thomas B. Rayner, and W. L. Rhoads. Dr. W. H. Hoskins, as chairman of the Committee on Resolutions, reported progress.

Dr. Hoskins then brought to the notice of the Association, under the head of new business, the disposition to ignore the civil service system in government offices and the re-establishment of the spoils system in our national civil service, and asked that the sentiment of the meeting might be conveyed to Secretary of Agriculture Wilson and to Senator Pritchett as well as all others likely to be interested.

He also spoke of the bill now pending for the purpose of establishing a number of inspectors along the border line of the State and the taxation of all carcasses coming in at $2.00 per head.

The applications of Dr. John W. Adams and H. D. Martein for membership were now read and referred to the Board of Censors.

Dr. John W. Adams was now introduced and addressed the Association on meat-inspection as it applies to large cities. After speaking of the various diseases met with, making beef, veal, mutton, and pork unfit for food, he then went on to tell of the inspection of Philadelphia's meat-supply, which, despite the best efforts of the inspectors, is at best a farce, when we appreciate the fact that Philadelphia has over one hundred and fifty slaughter-houses, and but four inspectors, the chief of whom is a layman, and his assistant a deputy with no special qualifications. The other members of the inspection force are two veterinarians, who are finally called to pass upon carcasses if questioned. This inadequate force is augmented by a consulting veterinarian, whose services are seldom called upon.

The great number of slaughter-houses makes it impossible for the inspectors to complete their rounds in a week, yet every day slaughter goes on in these places. Better inspection is needed, central abattoirs are a necessity. District slaughter-houses will be the only means of bettering the present conditions. He then spoke of the meat-inspection of the large cities of Germany. In the abattoirs of Berlin animals overheated or footsore are not allowed to be slaughtered. The deputy goes first, then the inspector comes, and he examines liver, lungs, and parts of carcass. If right, it is stamped upon the forearm, hip, region of tibia, etc.; if meat is found without this stamp, a question is immediately raised and a fine imposed. The inspection of pork for trichina is especially thorough, four sections being taken and subjected to microscopical test. Calves are watched: intestines and mesenteric glands for tuberculosis; lungs for verminous bronchitis; if lean and unthrifty, are condemned on general principles. You cannot buy bruised or unhealthy meat of any kind. The horse meat to be sold must go under the same rigid examination, and cannot be sold from the same store as other meats. He said by placing meat in cold-storage the odor was kept down, and all meat coming from these places should be closely watched. He has seen here slaughter-houses in full operation with open doors, with the next houses infected with scarlatina, measles, diphtheria, etc., for the germs of which we have no better media than fresh raw meat. Thus, every section into which the meat went was liable to a scourge of these diseases. The general public are entitled to better protection, and the best way to give it is first to awaken them to the true state of affairs through the columns of the press, and, as the medical profession, as a rule, seem indifferent to the present state of affairs as regards the meat- and milk-supply of the community from which they not only gain a livelihood, but many of them a competency, it becomes the duty of the veterinarian as a humanitarian to do all in his power to improve the present existing conditions. During the general discussion the present deplorable state of affairs was more clearly shown. Much of the meat now exposed for sale has the diseased parts trimmed off. The Chicago meat, as a rule, is better than home-dressed meat, as the inspection is more thorough. While the taxpayer and meat consumer feels secure, thinking the city fathers are protecting his health by thorough meat- and milk-inspection, this responsibility is really thrown upon the butcher, vendor, or producer.

Professor Marks said that in his experience he found the veterinarians do not stand up for their rights; they are not aggressive enough, but will stand back and see positions which they alone are qualified to fill held by medical men, laymen, or quacks who have a political pull.

Dr. Cullen felt the best way to remedy the present condition was bẏ the coworking of the veterinarians, the employment of legal talent, and the use of the press. In answer to some questions regarding sheep, it was said that the lungs were used for making soup in Germany, and in the inspection these were closely watched for verminous bronchitis, also that gid or turnsick was due to a cerebral cyst caused by tænia cœnurus. This disease is directly transmissible to man, thus making the meat of these animals unfit for food.

The nodular disease of sheep was really intestinal tumors caused by invasion of a parasite, and in some sections of the South made sheep husbandry unprofitable. These tumors resemble tubercular nodules, and may be mistaken for them.

Dr. Hoskins now reported a case of a collie dog having frequent micturition, each time ending with a few drops of blood; this was finally cured by charging his drinking-water with bicarbonate of sodium, and dosing with sanmetto.

Dr. H. D. Martein exhibited some fine specimens of calculi taken from horses upon which he had held post-mortems at the Zoo.

After the extension of a hearty vote of thanks to Dr. Adams for his kindness as speaker of the evening, the Association adjourned, to meet June 15, 1897.

W. L. RHOADS,
Secretary.

THE VETERINARY MEDICAL SOCIETY OF THE STATE OF NEW JERSEY AND VICINITY.

THE annual meeting was held at Dr. L. R. Sattler's residence in Newark, N. J., on April 13th. The following officers were elected for the ensuing year: Dr. L. R. Sattler, President; Dr. E. L. Loblein, Vice-President; Dr. E. R. Ogden, Treasurer; Dr. E. Buckley, Secretary. The Society elected a number of new members, which will give it a new impetus.

Papers were prepared, but the time being consumed by the election of officers, they were postponed until the next meeting. A number of cases were cited and freely discussed by the members, namely, purpura, parturient apoplexy, and thrombosis caused by abscess in the lung.

THE regular monthly meeting was held at Dr. Sattler's hospital, in Newark, on Tuesday, May 11th. Called to order at 4.30 P.M., President Sattler in the chair. The following members responded to roll-call: Drs. Sattler, Turner, Ogden, Loblein, Zucker, and Buckley. The minutes of the last meeting were read and approved.

Dr. Knott, of Plainfield, was elected a member. Dr. Sattler made a few suitable remarks regarding the welfare of our Society.

Discussions and reports from practice were next in order. Dr. Sattler reported having treated a case of chronic rheumatic shoulder-lameness with subcutaneous injections of veratrine in alcoholic solution in two-decigramme doses. Two injections were made around painful tissues. The injections were followed by very large abscesses. The animal made a good recovery. Discussion followed as to whether any other counter-irritant would not have produced the same beneficial results. The nature and formation of schirrous cords were freely discussed; also vaginal tumors in bitches.

Dr. Turner, of Hackensack, promised to prepare a paper to be read at the next meeting.

E. BUCKLEY, V.S.,
Secretary.

CHICAGO VETERINARY SOCIETY.

A SPECIAL meeting, on April 26, 1897, was called to order by the President, Dr Walker, who stated that the meeting was called for the purpose of deciding whether or not a protest should be made to the Mayor of Chicago against the appointment of a non-graduate and two assistants as veterinarians for the police horses of the city. On motion of Dr. E. L. Quitman, seconded by Dr. Rishel, that a committee of four be appointed by the President to wait on the Mayor and talk the matter over with him, the President appointed Drs. Hughes, Tuthill, Robertson, and P. Quitman. Dr. Walker said he also would attend.

Dr. Tuthill read a very interesting paper on the subject of this appointment; he also touched upon the appointment by the Governor of a non-graduate to the position of State Veterinarian. Moved by Dr. Robertson, seconded by Dr. E. L. Quitman, that the paper read be published in the *Daily Inter-Ocean*. Voted; carried.

On motion, adjourned.

A regular meeting was called to order by the President, May 13, 1897. The roll-call showed twenty-one members present. The Secretary presented a letter from Dr. S. E. Bennett to the Society, requesting that his resignation be accepted, as he had left the State. Motion by Dr. Ryan, seconded by Dr. McGrath, to accept the same. Voted; carried. A bill for stationery being presented by the Secretary for $3.37, motion was made by Dr. McGrath, seconded by Dr. Henderson, that the Treasurer be authorized to pay the same. Voted; carried. On application and examination by the Board of Censors, the two following gentlemen were admitted to full membership: Dr. D. W. McKillip and Dr. O. R. Dubia.

A report was made by Dr. Hughes, chairman of the committee appointed by the President at the last meeting to interview the Mayor in regard to the appointment of a non-graduate to the office of Police Veterinarian. The Doctor stated that the Mayor claimed that he had nothing to do with the appointment, as the office was not the head of a department; and that the Chief of Police was the party to see. The Chief was not seen, as the committee did not feel justified in so doing at the present time. After much discussion it was moved by Dr. E. L. Quitman, seconded by Dr. McGrath, that the Legislative Committee consider the feasibility of drafting a bill to introduce into the Chicago City Council making it a law that the veterinary surgeons employed by the city shall be graduates of recognized veterinary colleges; and that the positions filled by such veterinarians be a separate department from the police and fire departments; and that the legislative committee report at the next meeting their plans for this action. Motion by Dr. E. L. Quitman, seconded by Dr. P. Quitman, to discharge the committee appointed to wait on the Mayor. Voted; carried.

Under new business, Dr. Hughes stated that, owing to the appointment of a non-graduate to the position of State Veterinarian, he intended sending in his resignation as an Assistant State Veterinarian, as he would not consent to work under or assist in any way a non-graduate. This decision was received with applause from the members present. Dr. Ryan followed Dr. Hughes, who also stated that he intended resigning for the same reasons, and he hoped that all the assistants throughout the State would do likewise. A report was made that other assistants not present would also resign. Moved by Dr. E. L. Quitman, seconded by Dr. Robertson, that the Secretary have letters printed which he shall send to all graduate veterinarians in the State, asking those who are now assistant State veterinarians to resign and those who are not to refuse any appointment under the present State Veterinarian or any other non-graduate State Veterinarians, should any appointment be offered to them. That the Secretary give the letters the greatest possible publicity possible in all veterinary journals, farm papers, daily papers, and to the medical profession and public generally, both domestic and foreign. That as the Governor has paid no attention to the requests of the profession in the matter, and has appointed the said non-graduate in direct opposition to the welfare of the profession and the people of the State, when requested privately not to do so, that we now, as a profession, do all we possibly can to redeem the profession from its present condition by interesting the public at large. Moved by Dr. Hughes, seconded by Dr. Ryan, that at the next regular monthly meeting, June 10th, the members of the Society have a banquet. Voted; carried.

It was suggested that the Legislative Committee read a paper at the banquet, divided into sections among the committee, setting forth the proper course of getting a bill through our city council; also as to the meat- and milk-inspection for the city, and how such offices can be placed under the care of veterinarians.

On motion, adjournment.

LAWRENCE CAMPBELL,
Secretary.

MASSACHUSETTS VETERINARY ASSOCIATION.

THE regular monthly meeting was held at No. 19 Boylston Place, Boston, on Wednesday evening, March 24, 1897. Meeting was called to order by Dr. Winslow Members present: Drs. Burr, Connor, Dyer, Lee, Lewis, McLaughlin, Winchester, Winslow, and Stickney. John M. Armstrong, M.D., was elected a member of the Association.

The Chair appointed Drs. Peters, Blackwood, and McLaughlin a committee to make arrangements for our thirteenth annual meeting and banquet on April 28th.

HENRY S. LEWIS,
Secretary.

ORGANIZATION OF ST. LOUIS VETERINARIANS.

THE St. Louis veterinarians held a meeting and organized a city association in the Board of Education building in that city. Among those present were Drs. Hammerstein, Piatt, Smedberg, Sheridan, Dickey, Kelly, Menisterno, Ellis, Kammerer, Hemplemann, Crowley, James, Cass, and Day. A Constitution, By-Laws, and Code of Ethics were adopted. The following officers were elected: President, Charles V. Ellis; Vice-President, A. J. Hammerstein; Secretary, R. A. Kammerer; Treasurer, H. B. Piatt.

STATE BOARDS OF VETERINARY MEDICAL EXAMINERS.

THE examinations of the Maryland State Veterinary Examining Board will be held on the second Tuesday in June.

The examinations of the Pennsylvania State Veterinary Board of Examiners will be held at Philadelphia on the third Monday and following Tuesday of June.

The Ohio State Board of Veterinary Medical Examiners held their examinations on April 13th and 14th at Columbus. Some fourteen candidates presented themselves for examination.

Dr. J. C. Meyer, Jr., of Cincinnati, has resigned as a member of the State Board of Veterinary Examiners in Ohio, and his place has been filled by the appointment of Dr. W. E. Wight, of Delaware, Ohio, graduate of the Ontario Veterinary College, class of 1883.

ASSOCIATION NEWS.

THE Ontario Veterinary Association, through a delegated representative party of the State Association, have asked to have the following inserted in their Act of Incorporation: "It shall not be lawful for any person not registered to practise veterinary medicine or surgery, or to perform any surgical operation whatever for hire, gain, or hope of reward. And, if any person not registered pursuant to this Act, for hire, gain, or hope of reward, practises or professes to practise veterinary medicine or surgery or advertises to give advice in veterinary medicine or surgery, he shall, upon summary conviction thereof, before any Justice of the Peace, for each and every offence, pay a penalty not exceeding $25 nor less than $5."

The Perth Veterinary Medical Association of Ontario recently held a meeting and elected the following officers: President, Dr. Gibb, of St. Mary's; Vice-President, Dr. Hodgins, Stratford; Secretary, Dr. Wagner;, Treasurer, Dr. Tavistock. Some papers were read and discussed, and Drs. William Gibb, Steele, Clark, G. Gibb, Orr, and Shillington were authorized to represent this Association as delegates at the Ontario Veterinary Association held at Toronto on March 25th. Dr. Hutchings, of Mitchell, described a case of choke in a cow, the result of an old shoe lodging in the anterior part of the œsophagus. Similar cases were reported by Drs. Hodgins and Gibbs. An interesting paper was then read by Dr. Gibbs on lameness in all forms affecting the different extremities, giving a concise line of differential symptoms, and referred to fractures and modes of bandaging the same.

The Schuylkill Valley Veterinary Medical Association will meet at the Hotel Woll, Pottsville, Wednesday, June 16, 1897.

RESOLUTIONS PASSED BY THE CHICAGO VETERINARY SOCIETY.

THE following resolutions were passed by the Chicago Veterinary Society at their last regular meeting, May 13th:

WHEREAS, The Governor having appointed a non-graduate to the position of State Veterinarian for the State of Illinois, be it

Resolved, That it is the sense of this meeting that the Assistant State Veterinarians among our members do tender their resignations as such, and further, that none of our members do apply for or accept a similar position under the present incumbent; be it further

Resolved, That we as a Society do hereby apply to all qualified practitioners in this State to follow a similar course of action in order to uphold the integrity of the veterinary profession.

The members of the Chicago Veterinary Society positively refuse to have any business intercourse with the present appointee in any manner whatever, and are using every effort to make the Governor reconsider his appointment.

Foreign countries will soon take this matter up, owing to the incumbent being a non-graduate, and without doubt, interested parties will soon discover that the exportation of live-stock from this State will be interfered with. A number of the members of this Society have held the office of Assistant State Veterinarian for a number of years, and are men of the highest rank in our profession, most of whom have publicly expressed their intentions of sending their resignations to proper parties, and have voiced their desires that no other practitioner will so degrade the profession as to take a vacancy under the present chief.

U. S. V. M. A.

NASHVILLE, TENN., SEPTEMBER 7, 8, AND 9, 1897.

Secretary Stewart has sent out a timely letter to those of the members who have become delinquent in dues, and we are sure it will bring many responses and create fresh interest in the coming meeting at Nashville.

Among those who will present papers at Nashville we learn with pleasure that Dr. E. A. A. Grange, of Michigan, will offer one on "Infectious Mammitis."

The programme at Nashville will announce papers by Drs. W. L. Williams, M. H. Reynolds, E. P. Niles, and S. J. J. Harger.

Dr. A. S. Wheeler, formerly of New Orleans, now at Biltmore Farm, N. C. (the change necessary on account of ill health), writes me in response for a paper, that if he finds that he can attend he may prepare a paper for the Nashville programme.

The "Bureau of Animal Industry's" display consists of models and specimens in alcohol representing some of the infectious diseases in the domesticated animals, models of diseased horses' hoofs, shoes for the correction of faulty gaits, and the treatment of diseases of the hoof; tags, implements, etc., used in the United States meat-inspection service; cultures of bacteria, toxins and antitoxins, animal parasites; a pyramid of wood samples from the Southern States; poultry illustrating the gape-worm disease; photographs of famous horses and cows. The exhibit was prepared by Dr. D. E. Salmon, Chief of the Bureau, assisted by Dr. C. F. Dawson.

Dr. W. H. Dalrymple, of Louisiana, has consented to read a practical paper on a popular topic at the Nashville meeting.

SOMETHING TO INTEREST EACH READER.

WE learn of the abandonment, by one of the veterinarians of western Pennsylvania, of the proprietary-medicine scheme which he adopted as the "Mulberry Seller's" plan to get rich quick.

Parasites of the stomach are causing heavy loss among sheep at Lagrange, Ind.

Breeders of dark-colored hogs are having a constant fight to offset the tendency to white or light-colored markings in the offspring.

The shipment of sheep affected with scab from one State to another through the West is giving the Bureau of Animal Industry much concern.

Fifteen thousand dollars was the price paid for the famous horse "Joe Patchen" at the auction-sale in Chicago.

Live steam is one of the best methods of ridding barns of mites and lice, and is equally beneficial in chicken-houses.

At the sale of trotters in Chicago, May 4th to 6th, some ten horses were bought by foreign buyers. Surely the trotter is winning his way abroad as well as at home.

Veterinarian G. A. Banham, of England, suggests the formation of an insurance association among veterinarians for the purpose of partially indemnifying owners of animals where the latter are injured, develop tetanus, blood-poisoning, have open-joints, etc., incidental to operations or while under treatment by veterinarians.

A lady-student has qualified for her first professional examination at the Royal Veterinary College, London, England.

The introduction of foxes into Australia for sport, and with the hope that they might help to eliminate the rabbit-pest, has brought another infliction upon the stock-raisers. Many sheep's tongues are lacerated so badly by the foxes that the sheep die.

Prof. Motley Axe, of Great Britain, is quoted as authority for the statement that one in five of the milk-cows of the United Kingdom are tuberculous, and if slaughtered and paid for at a valuation of £4 per head, it would take £11,000,000 to reimburse the owners.

The young stallion Orme, son of Ormonde, is thought to owe his recent display of high temper and unmanagebleness to a diseased tooth.

Veterinarian John Minchin, of Goshen, N. Y., is the possessor of the bridle-bit of the famous imported thoroughbred stallion, Messenger.

Dr. Robert Koch, the eminent German bacteriologist, who has gone to South Africa to make a study of the rinderpest, is doing admirable work in this line. His investigations have already convinced him that this malady can be conquered by a resort to the same means which have robbed diphtheria of its terrors. Dr. Koch reports that he can now render healthy cattle immune from attack, and has had some success in curing those upon which the disease, hitherto regarded as invariably fatal, had fastened itself. "The work already done," he writes, "convinces me that the rinderpest can be eradicated with little difficulty and within a comparatively short time."

Proposed A. J. C. C. Scale of Points—Cows and Heifers:

1. Head lean and not large, face dished, broad between the eyes, wide full muzzle, eyes full and bright, clear horns, counts 6.
2. Neck not too thick, rather long, with clean throat, good withers and shoulders, counts 6.
3. Back good length, level to setting on tail, tail small in bone and reaching below hock, good switch, counts 5.
4. Hips well apart, rump long and not sloping, broad across loins, counts 8.
5. Barrel long, well rounded out, ribs well apart, deep at flank, counts 14.
6. Hide soft and flexible, of reasonable substance, color of inside of legs at thigh and armpit and inside of ear, tinted yellow, counts 7.
7. Legs short and well apart, hind legs comparatively straight and thin at thighs, counts 7.
8. Udder well proportioned, capacious teats, good sized and well placed, milk veins hard and full, extending well forward, counts 32.
9. Disposition, general appearance, and apparent constitution, counts 15.

Bulls: The same scale of points shall be used in judging bulls, omitting No. 8. Add 20 points for well-placed teats, and thin in thigh; due allowance should be made for masculinity, but when bulls are exhibited with their progeny in a separate class add 20 points for progeny.

Pure-bred pigs weigh at birth from 2¼ to 2¾ pounds; at a week old, nearly double this weight.

Among the latest inscriptions on a Western veterinarian's bill-heads we note the following: "All bills due when services are rendered; cash fully appreciated; collections made monthly; even-handed justice to all, but no miracles performed."

In a Maine family of eight children, using the milk of a cow suffering from tuberculosis, three children have recently died of tubercular pneumonia, and three others are reported beyond the hope of recovery. The other two are ill. Another child of the household refusing the milk is in good health.

The returns from the Department of Agriculture show that horses have decreased 5 per cent. from the previous year and mules 2 per cent. Their numbers are increasing in the South and on the South Atlantic coast, but are decreasing elsewhere.

Spain has purchased for her Cuban army some three thousand horses, mostly from Texas.

PERSONAL.

Dr. G. A. Johnson, of Sioux City, Iowa, and Dr. R. P. Steddom, of Galesburg, Ill., have been stationed at Kansas City, Mo., as inspectors under the Bureau of Animal Industry.

Dr. T. A. Bray has been transferred to the quarantine department.

Dr. Wm. C. Barth, inspector under the Bureau of Animal Industry, has been transferred to Wichita, Kansas.

Dr. W. Heck, Keokuk, Iowa, inspector under the Bureau of Animal Industry, has been ordered to report for duty at Kansas City, Mo.

Dr. Hugh T. Doris, of Pittsburg, is defendant in a $10,000 damage-suit.

Dr. R. W. Carter, of Jobstown, N. J., is manager of the famous Rancocas stud-farm at that place.

Veterinarian W. C. McMakin, of Raleigh, N. C., has taken sufficient interest in good roads to have received at the hands of his people the position of supervisor of roads for that district.

Drs. R. H. Harrison, of Atchison, Kas., and L. E. Day, of Kansas City, Mo., were before the civil service examiners in February last for the position of meat-inspectors under the Bureau of Animal Industry.

Dr. A. S. Wheeler, of New Orleans, has located permanently at the Biltmore farms of Mr. George Vanderbilt, at Biltmore, N. C.

Veterinarian Robert Ward, of Baltimore, Md., has succeeded in having the Maryland School for Horseshoeing incorporated.

Dr. H. D. Hanson, of New York, purchased the trotting gelding Harry G., record 2.19½, at the April Fasig sale.

Dr. F. Rawson, of Kalamazoo, Mich., has removed to Lawton, in the same State.

Veterinarian L. Hugo Reed, of Guelph, Ontario, was the winner of the first prize for the best pair of carriage-horses shown at the Guelph horse-show.

Dr. J. Rein Keelor, of Harleysville, Pa., was recently chosen a director of the Lansdale Driving Park Association.

Dr. George Hilton, of Winnipeg, Man., has finally located at Portage la Prairie, Man.

Veterinarians James B. Rayner, B. M. Underhill, W. P. Phipps, B. F. Eshelman, and Warren T. Edwards were interested visitors at the May Stud Horse Show at West Chester.

F. L. Forrest, V. S., formerly of Defiance, Ohio, has enlisted as a private in the 19th Infantry, U. S. A.

Dr. Marsh L. Brackbill, Reading, Pa., is making a trip through Europe, having sailed with a consignment of horses.

GLEANINGS.

Electric-tape is highly recommended as an excellent material for securing in place the bandages on the wounded extremities of dogs. It can be obtained at most electrical-supplies stores.

Dr. R. W. Finlay, of New York, in answer to a correspondent, says osteoporosis is a non-inflammatory disease, more prevalent among males than females, rarely seen after five years of age, and is not contagious.

The average quantity of water consumed daily by six cows varied from 70 to 140 pounds each. These were stabled cows, and for every pound of milk produced, four pounds of water were consumed. In this experiment the cows which gave the richest milk consumed the largest quantities of water.

The *Veterinary Journal* recommends as a good disinfectant one half-ounce of corrosive sublimate and one fluidounce of hydrochloric acid in three gallons of water. It is suggested as a precautionary measure, to avoid its being mistaken and used internally, to add five grains of commercial writing blue or ordinary violet writing-ink, to give it a conspicuously distinguishing character; it should be applied with a whitewash-brush on flat or smooth surfaces, and with a syringe in hidden parts. After remaining over night on stalls, feed-racks, or boxes, these should be washed off with warm water to remove the mercury.

The wireworm (*Strongylus contortus*) is causing losses among the sheep in Australia.

The arseniate of iron and strychnine, in combination with iodide of potassium, has recently been brought forth as efficient treatment for horses whose respiratory organs have become the seat of such changes as to produce roaring, whistling, and emphysema.

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ANNUAL ADDRESS OF THE PRESIDENT OF THE ALUMNI ASSOCIATION OF THE AMERICAN VETERINARY COLLEGE.

By L. H. Howard, D.V.S.,
BOSTON, MASS.

THE assembling to-day of our Association in its twentieth annual reunion is an occasion worthy perhaps of more than passing notice. The celebration of a twentieth anniversary of the organization of a brotherhood such as ours is one full of interest, and marks a point more or less prominent in its history. Let us, therefore, in this twentieth milestone look at the circumstances of our position, mark our progress for twenty years past, and possibly shape our course for another decade.

For twenty years we have been growing from the small beginning of a graduating class few in number, but possessed of commendable enterprise, and to whom occurred this thought—that as our alma mater was already taking rank as one of the representative educational institutions of the country, the large numbers of its prospective graduates should be united, forming an association for the benefit, pleasure, and profit alike of its own members and of the institution to which all would owe their professional being.

Fostered in our early, weak existence by the teaching faculty of the college, and encouraged by its interest in our behalf, strengthened yearly by the addition to our ranks of an increasing number of graduates, and among them many who have shown their ability and readiness to advance the best interests of the association, fortunate in being officered in many instances by men who have demonstrated in the history of veterinary medical associations of this country their exceptional executive qualifications, we have gradually attained to a size, contemplation of which (600 members) inspires the thought, "a powerful factor in the development of veterinary medicine."

Since that small beginning of ours, and during these twenty years which have elapsed, much of importance has occurred in the growth of veterinary science, and each year's record is certainly one of great progress. In some particulars the progress has been exceedingly rapid, and the graduate of twenty years ago, in keeping with the changing conditions, has rapidly advanced, until at the present time he finds himself to be not only the medically and surgically trained veterinarian in demand a decade ago, but, owing to the development in the public mind of an appreciation of the importance of the healthfulness of all animal products, he is in demand as the properly qualified person to inspect such products, the sanitary police officer, the protector of public health.

As a private worker and student in comparative medicine, in the various public official positions, as municipal health officer, as State veterinarian or member of State board having control of contagious diseases of animals, in the ranks of the great Bureau of Animal Industry, in the laboratory, and in the field, the veterinarian has found his scope of usefulness gradually changing and enlarging, and the public demanding qualifications commensurate with its better knowledge of the wonderful evolution of medical science.

The veterinarian has not been found wanting, but is to-day to be found in every portion of our country doing the work expected of him, not only, as I have before said, as the well-trained veterinarian skilled in the treatment of diseased animals, but as the worker in the relatively new science of prophylactic medicine.

Now, then, whether or not in the development of veterinary science in the past twenty years, whether or not in the advance made in comparative medicine purely, whether or not in the resulting growth in the number of institutions fitted for the training of the veterinary practitioner, the teacher of comparative medicine, and the public health official, whether or not in filling all the many demands of the highest development of veterinary and comparative medicine, our alma mater has done its share, we have only to familiarize ourselves with the history of such development in this country—to answer, we can truly say its history is our history. Not only do we include in our ranks many men now well known and of high reputations in the great army of general practitioners, but a glance at the list of veterinarians connected with the educational institutions of the country as organizers, teachers, or directors, shows that many of them received their training within these walls. In the various State veterinary medical associations and in the national organization our men have been prominently active and the workers to whom much of their success has been due. In official positions, municipal, State, and national, many of our fellow alumni are to be found who by their work are establishing a meritorious name for themselves and adding to the credit of their alma mater, besides returning to the people of their respective communities benefits not capable of being measured or calculated in their effect upon the future of the human race.

Therefore, on this our twentieth anniversary let us congratulate ourselves on our present situation and the part we have played in whatever of improvement, progress, or benefit has come to our chosen profession since our organization twenty years ago.

To the eyes of some, today, by the successful application to vehicles of motive power other than horses, the field of usefulness of the practising veterinarian is becoming limited. The bicycle, electric street-car, and horseless vehicles of all descriptions are rapidly being brought to a high state of perfection, and the faster they develop the more threatening becomes the bugbear. To others, however, more optimistic, the prospects of continued employment in the future are as promising as they have ever been. According to the history of the human race in modern times, as civilization has advanced so have multiplied the uses of man's great helper, the horse; and we are not going to do without him now any more than we could when substituting railway cars for stages coaches.

Be that as it may, the field of usefulness for the veterinarian as developing in comparative medicine relating to the protection of human health is one widening every year, and in which there is yet room for many, and no end to the new truths possible to be evolved by able men. Comparative medicine and human medicine are closely related, and this fact is becoming recognized much more fully every year, and in due proportion is the aid of the veterinarian sought.

There is never an end to the wonders which science reveals, and the record of progress in things veterinary is to be continued for years to come. Original investigation, scientific research, experience made valuable to all by its interpretation by bright minds, the higher standard of matriculation, additional courses of study, longer training, and severe requisites for graduation of our educational institutions will all contribute to this end.

As veterinary progress is assured, so is our progress as an association to be continued. To-day we have added to our ranks a goodly number of the newest product of our alma mater. To these young members, "fresh from the halls of learning," we look for new inspiration, and, imbued as they must be with love for alma mater, theirs is the duty to assist in conserving to her the good name and high reputation which has always been hers.

INVOLUNTARY TWITCHING OF THE HEAD RELIEVED BY TRIFACIAL NEUROTOMY.

By W. L. Williams, V.S.,
PROFESSOR OF SURGERY AND OBSTETRICS, N. Y. STATE VETERINARY COLLEGE, ITHACA, N. Y.

We occasionally meet with a peculiar disease, habit, or vice in the horse which apparently no one has attempted to describe, though doubtless observed by almost every veterinarian of experience, the chief symptoms of which are involuntary shaking or twitching of the head and rubbing of nose and lips against convenient objects.

In our personal experience the abnormality has been chiefly noted in young horses of marked vigor of constitution, highly fed, and well kept, with but moderate or very light work. It develops gradually and has attained well-fixed characters before the owner has noticed what seems to him a hallucination or vice. The animal more or less frequently gives the head a sudden jerk or shake, as though tormented by insects, though no cause for the movement is discernible. The owner or driver will attribute the difficulty to an irritation of the bit, something about the nose or the ears, but a close study indicates that the movements are not subject to the control of the animal.

The symptoms are in evidence chiefly in winter in mild cases. They disappear with the advent of warm weather, to reappear upon the return of winter, while in severe cases the symptoms are much ameliorated during the warmer months. The symptoms are aggravated when the animal is ridden or driven, but continue in the stall. As the head is twitched there is generally considerable motion of the muzzle, the upper lip being moved as though irritated, and if a convenient obstacle is near the lip is rubbed in a hurried and quite intense way, as though to dislodge an insect.

A close inspection fails to reveal any anatomical lesion to explain the symptoms. Owners have prevailed upon us to clip the hairs from within the concha, under the belief that possibly these irritated the external ear; other owners have applied anodynes to the part. We have examined the teeth in detail, hoping there to discover the cause, and have smoothed these; but the mystery of the abnormality, its cause and nature, remained unsolved, and no guesses served to cure or alleviate the difficulty.

During the college year of 1896–'97 three cases of this kind were presented at our free clinics, two of which were turned away as mysteries after one of them had had his teeth carefully examined and smoothed with the rasp.

The third case presented was a well-bred, vigorous young gelding of fine style and action, but rendered comparatively worthless by the constant twitching of his head whether in harness or stall, accompanied by intense rubbing of the upper lip on the manger, pole or other convenient object.

By wearing a small net, in general character like an ordinary cord fly-net, large enough to cover the nostrils and upper lip, the owner found he would go fairly well in harness, but the presence of the net was sufficient to attract attention and prevented his sale. The owner, a dealer, was consequently anxious to have some remedy applied which would render the animal agreeable to drive and salable. He was fully persuaded that the difficulty lay in an irritation or hyperæsthesia of the upper lip, and when assured that sensation in this could be almost wholly destroyed by sectioning the supermaxillary branch of the trifacial, the owner promptly insisted that the operation be tried, which was accordingly done.

The horse was cast, the hair was shaved from the skin covering the infraorbital foramen, and a solution of cocaine injected upon the nerve. The skin was thoroughly disinfected and an incision about three-quarters of an inch long made directly over the course of the nerve, laying it bare. It was then cut through at the infraorbital foramen, after which a section of the nerve about three-quarters of an inch, was dissected out and incised, the wound dressed with iodoform, sutured with catgut, the operation repeated alike on both sides of the head, the patient released, and placed in a box.

The cocaine failed in its mission, and the operation proved one of the most painful we have ever witnessed. After the operation the symptoms were greatly exaggerated, the animal being quite frantic, throwing his head violently and recoiling suddenly whenever his nose came in contact with the stall, feed-box, or hay-rack. In a few hours he was, with some difficulty, hitched with his mate and driven home, a distance of twenty miles, though found exceedingly difficult to manage, a serious disaster being narrowly averted at one time.

Soon after reaching home the exalted nervousness subsided and marked improvement soon set in, the wounds healed aseptically, and within a few days the patient had recovered from both operation and malady and was driving normally, and continues sound now after about four months.

The results of this operation indicate a peripheral neurosis of the trifacial, and go far to contradict the belief that it is a habit or vice.

The operation itself is exceedingly simple and easy, but it is the most painful in which we have ever engaged, and should be undertaken, it seems to us, only under complete general anæsthesia. With proper precautions aseptic healing should be readily attained.

No attempt should be made to work the animal for some days after treatment. Our success seems to indicate that the operation is a radical cure for the malady and capable of fully restoring the usefulness of this class of animals.

CONTRIBUTION TO THE STUDY OF THE HORSE-CHESTNUT.

BY J. L. CLARK, V.S.,
STRATFORD, CANADA.

Æsculus Hippocastanum (common horse-chestnut). Synonyms: *Hippocastanum Castanea folia multifido.* Though this castanea was well known to the ancients, yet Mathiolus seems to be the first author who described the horse-chestnut, which was brought into Europe about the middle of the sixteenth century, and was so scarce in the time of Clusius that there was then but one tree known at Vienna, which, being too young to bear fruit, nuts were obtained from Constantinople in 1588, after which this tree was very generally propagated. It was cultivated in England by Mr. Tradescard, in 1633, and is now very common in this country.

The wood is white, soft, soon decays, and is therefore of little value. The fruit in appearance resembles that of the Spanish chestnut, and is eaten by sheep, goats, deer, oxen, and horses. It contains much farinaceous matter, which, by undergoing a proper process, so as to divest it of its bitterness and acrimony, probably might afford a kind of bread. Starch has been made of it, and found to be very good. It appears also to possess a saponaceous quality, as it was used particularly in France and Switzerland for the purpose of cleaning woollens and in washing and bleaching linens.

With a view to its errhine power the Edinburgh College had introduced it into the materia medica. A small portion of the powder snuffed up the nostrils readily excites sneezing; even the infusion or decoction of this fruit produces this effect. It has, therefore, been recommended for the purpose of producing a discharge from the nostrils, which, in some complaints of the head and eyes, was found to be of considerable benefit.

On the Continent the bark of the horse-chestnut tree is held in great estimation as a febrifuge, and upon the credit of several reputable authors appears to be a medicine of great efficacy. Zannichelli, of Venice, was the first to publish its successful use in various cases of intermittents, since which its good effects have been confirmed by Leidenfrost, Peipers, Junghanss, Carte and Willemet, Sabarot de la Varniere, Surra, Buchholz, and others, from whom it appears that this bark may be substituted for the Peruvian bark in every case in which the latter is indicated, and with equal if not superior advantage.

A horse-chestnut tree above eighty years old and fifty feet high has been found in a healthy and growing state. The ripe capsule seldom contains more than one nut, but on being examined in its embryo state two are constantly found. Horses are said to eat this food greedily, and by it to have been cured of coughs and pulmonary disorders, and hence the name horse-chestnut. For the purpose of fattening cattle, and particularly sheep, it has been thought necessary to macerate the nuts in caustic alkali, in order to take off the bitterness, afterward wash them in water, and then boil them to a paste. Lime-water was found to answer the purpose exceedingly well. But if the nuts are cut and mixed with oats or bran this purpose may be effected with less trouble.

The bark intended for medicinal use is to be taken from those branches which are neither very old nor very young, and to be exhibited under similar forms and doses as directed with respect to the *cortex Peruvianus*. It rarely disagrees with the stomach, but its astringent effects generally require the occasional administration of a laxative.

THE INSPECTION OF DAIRIES.[1]

BY GEORGE W. MCGUIRE,
DAIRY COMMISSIONER OF NEW JERSEY.

IN discussing this subject it is my desire to awaken an interest in the minds of the members of this Association in regard to a more perfect system of milk-inspection in our State. The milk-laws now on our statute-books were placed there with a view to remedy the loose and criminal practices that were made use of in the debasement of the milk-supply for the profit of the seller. These laws have been in operation for about fifteen years, and while the object of the framers was of a commercial rather than a sanitary nature, an incalculable amount of good has resulted from their enforcement—to the dealer, financially, in that he has been protected against the buying of diluted milk; to the consumer, in that the dealer is subjected to an official watchfulness; and it is the privilege of both to prove their suspicions by asking for an official inspection of the milk they are receiving.

The inspectors employed by the State have become so expert in handling milk that it is difficult for anyone to continue long in the sale of adulterated milk without detection. Generally speaking, there is little contention on the part of the defendant in cases of prosecution for violations of the milk-law; when milk is subjected to a chemical analysis and found to contain less than 12 per cent. total solids, the fact is invariably accepted by all experts that water or skim-milk has been added to it, and it is very seldom that a person detected in watering his milk is willing to stultify himself by contesting the prosecution.

Owing to the geographical location of our dairy-farms, most of which are so accessible to markets requiring a fresh milk-supply, a very small percentage of the milk of this State is made into butter.

According to recent statistics there are in New Jersey 200,347 milch-cows, the value of which is $6,887,930. By this it will be seen that the dairy industry of the State is of vast importance and steadily increasing, while the necessity for a more thorough and systematic inspection as to the health of the cattle and their product is growing in proportion, especially so when it is remembered that a large percentage of the milk from these cattle passes through so many hands before it reaches the consumer.

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[1] Read before the State Sanitary Association at the Laurel House, Lakewood, New Jersey, December 11, 1896.

New York has a daily consumption of about 700,000 quarts per day, Philadelphia about half that quantity. A very large share of the milk going into the city of New York is either produced in or passes through our State, and it becomes necessary for the inspector to know something of the quality of the milk which is being transported. And in this connection I do not hesitate to say that the milk produced in our State is equal if not superior to that from other States.

It is the duty of the milk-inspector to see that the local dealers in our cities and towns dispense milk containing 12 per cent. total solids, and for this purpose it is necessary for him to be frequently at the receiving stations and creameries where milk is received from the farmers, to see that the wholesale dealers do not dilute the milk with skim-milk or water, and finally to visit the farm or dairy where milk is produced and inspect the premises and the methods there in use.

It is said by bacteriologists that, in addition to the bacteria peculiar to milk, innumerable others dangerous to life and health come from the air, the water, and many other sources, both animal and vegetable, and that milk at all temperatures between the freezing-point and 160° is in a complete state of readiness to receive and grow them. Yet many farmers are not willing to accept these scientific facts which have been so unquestionably proven of late years, and scout the idea of any harm resulting from the use of milk, however carelessly it may have been handled.

It is far from my desire to give the impression that persons engaged in producing milk are needlessly untidy, and the product thus of an unwholesome character, but rather there is a legitimate basis of cleanliness and proper methods to which all dairymen should conform, and when this is appreciated and heeded by milk-producers it will be conducive of health to the public and economy to the dairymen. There are, however, persons engaged in producing milk in this State that by their habits, education, and surroundings are totally unfit to handle and sell this important article of food, and according to the legal advice we have we are powerless to compel better conditions or cause the abolishment of the business. In his regular inspection-tours the trained milk-inspector soon discovers these places, and in his efforts to improve on the practices in use he is met almost at the start with the knowledge that the law is inadequate to assist him, frequently he is defied by the owner, and the milk which should be so pure and nourishing, but which, through the ignorance and negligence of the producer, is so dangerously unwholesome, continues to be consumed by the public day after day, until an epidemic breaks out, and we wonder what has caused it.

During the past year the speaker, in company with the Secretary of the State Board of Health, visited two or three premises on which milk was produced by persons of this character, and witnessed an exhibition of filthy methods and surroundings which I am sure would startle my hearers and awaken them to renewed efforts in the direction of securing larger official supervision over the milk-supply. To illustrate, I will mention two cases which came under my notice officially during the past year, showing to what extent ignorance and filth abound in the management of one dairy and intelligence and tidiness in another. The following is a copy of the notes taken on the premises of an alleged dairyman on Penn Horn Creek, Hudson County, on December 26, 1895.

Copy of report, December 26, 1895: "Visited the premises of a dairy near Penn Horn Creek. This place is reeking with filthy air—the ground, the water, the buildings, and the cattle. The owner has sixteen head of milch-cows, which are kept in a stable about thirty feet long and six feet and six inches high. This party collects swill in New York and feeds it to his cows; he boils portions of the swill for the purpose of recovering the fat contained in it. Garbage in piles, in barrels, and strewn upon the ground, together with excreta from the cattle, render the premises revolting. The cattle stand deep in their droppings, and their bellies, sides, and tails are plastered thick with dung. Several of the cows were thin, and two appeared to be emaciated by disease, but, notwithstanding the condition under which they are kept, the remainder were plump. The cans are washed with water from a well on the premises, and a barrel is used to hold the water during the washing or rinsing of the cans. This contains garbage. The water pumped direct from the well had an offensive smell. This man is said to sell his milk in Hoboken."

The following inspection was made on September 20th, at a farm in Wantage Township, Sussex County:

"This herd consists of thirty-two cows of native breed, which were brought from the pasture to the barn in the evening to be milked. The barn was large and airy, and had ample floor-space for each cow. The cows had the appearance of being in a fine condition as to health, and the barn was noticeably clean, no trace of manure appeared at the time of the inspection. The milking was done by the owner and a hired man, and their methods were closely watched while they performed their work. The first thing they did after the cows were placed in their stalls was to thoroughly brush the bellies and udders; they then went to a small room where soap and water was provided and thoroughly washed their hands and faces; when each man had milked two cows he would again go to the washroom and wash his hands. This continued until the whole herd was milked. As soon as the milk was drawn from the cows it was taken to an adjoining room, which had been freshly whitewashed, and filtered through a clean cloth and metal strainer; it was then passed over a milk-cooler and aërated, and when the milk had been thus treated the temperature was 55°. The milk was then taken to a milk-house and the cans submerged into spring-water to within eight inches of the top and left there until the following morning, when it was taken to the station for shipment to New York City.

"The milk-cans were thoroughly inspected and found to be bright and absolutely clean. The owner of the dairy was highly complimented by the inspector on his treatment of his cows and their product, and he stated that he had no difficulty whatever in disposing of his milk; that he was never requested to withhold it in times of a surplus in the market, and never had any return on account of its souring or from any other reason."

It is at once apparent that the existence of such a place as I have described, located in Hudson County, is a daily menace to the life and health of every person who consumes any part of its product, while, on the other hand, if every dairy in our State were conducted on the lines adopted by the Sussex County dairyman, and equal care was observed by all who handle it until it reaches the consumer, not only would the public health be benefited, but the knowledge that we are consuming a clean, wholesome food would add to our pleasure and comfort.

Another source of danger to the milk-supply is in the handling of milk by persons in poor health with germs of disease about them. The Massachusetts Board of Health say, in their report just issued, that one of the most common means by which typhoid fever is spread among the population is the milk-supply. One of the men employed in the dairy may show the first symptoms of typhoid, and continue at his work for days before he is actually stricken down with the fever. In the meantime he constantly handles the pans, utensils, and even the milk which the public, not suspecting the danger, will eventually drink, and in this manner the germs of disease are communicated to the milk from the hands of the man sickening of typhoid, and the consumer takes into his system the germs of a violent disease, which may or may not have a disastrous effect, according to his physical condition.

Perhaps no country in the world excels the little kingdom of Denmark in its methods of so handling milk as to assure its wholesomeness. With a population of 2,000,000 of people, and an area about half that of the State of Maine, they have made a reputation for their dairy-products over all Europe, to which they annually export nearly 2,000,000 pounds of butter. As a people they have been instructed in the art of dairying by the Royal Agricultural Society, which in 1837 started a school for the purpose of providing dairy-instruction for farmers' sons and daughters, and in addition to this there is an agricultural school for dairy science at Copenhagen. The influence of this school has been felt over all the kingdom, and the credit is due these institutions for the marked success which Denmark enjoys as a dairy nation.

In the city of Copenhagen competition in the supply of fresh milk is very sharp, but I am told it takes the form of supplying a fine quality rather than selling it at reduced prices.

One large firm organized for the purpose of furnishing its patrons with absolutely pure milk adopted a very strict code of rules governing the handling of milk, to which every seller conformed if he desired to sell his products to the firm. The rules relate to the quality and quantity of the food of the animals in winter and summer, and the wholesomeness of the milk before and after calving. They also provide that the hair from the udder, the tails, and hindquarters be clipped before stabling in the fall, and properly regard cleanliness in the milking, cooling, and filtering, cleanliness of milk-vessels, drainage, water-supply, etc. This company employs a veterinarian to watch the health of the cows, and he spends his time in travelling from farm to farm for this purpose. They also employ a staff of trained dairy-maids, who travel from farm to farm to examine the surrounding conditions with reference to the cleanliness and care in milking. They watch the feeding, the cooling of the milk, and its preparation for shipment. When the milk is received in the cities an experienced dairy-woman stands by and tastes and smells the milk from each farm, noting whether it falls below the high standard that is required. It is then immediately filtered through a large enameled bowl with a capacity of about forty gallons. This bowl is so constructed that the milk is entered at the bottom and is discharged from pipes on the sides near the top. The milk is poured into a large reservoir somewhat higher than the filter, and thus attains pressure sufficient to force it through several successive layers of gravel and six thicknesses of cloth, thus assuring the customer that it is absolutely clean, pure, and wholesome.

It would be a good stroke of business enterprise if the milk-dealers in our State were to study the methods in use in Denmark, with a view to improving the quality of the milk they handle, and at the same time secure to themselves a larger and more substantial business, with greater profits.

One of the greatest difficulties in the way of procuring desirable milk is the sharp competition in the price among the dealers. This has a disastrous effect upon the producer, who seldom receives a reasonable profit for his product. This condition of affairs in trade influences dairymen to keep a grade of cows which will give a larger flow of milk, irrespective of its quality, and affords no incentive to put in operation the more superior methods of a well-conducted dairy. There are a number of dealers in our State, however, who pay the producer a liberal price for his product and insist upon receiving milk which has been treated in such a way as to insure its absolute wholesomeness. These men are successful dealers, and deserve the support of every sanitarian and the encouragement of every intelligent citizen.

In addition to our present laws we need legislation which will give power to the local board of health of every municipality in the State to cause an inspection to be made of all premises where milk is produced, vesting such authorities with power to enforce proper sanitary regulations and requiring them to keep a book of registry for the purpose of recording the facts connected with each inspection, which record shall be open to the inspection of the State Board of Health or State Dairy Commissioner, or submitted to them upon request. A provision should also be made in the law that if the local authorities refused or neglected to enforce the law it should be lawful for the State Board of Health or State Dairy Commissioner to prosecute the offenders. If a measure embracing the above features be enacted into the law, the effect will readily be seen. By securing a registry list of all persons engaged in the milk-business the State departments would not only be in possession of the most valuable data, but also a way opened by which a most systematic inspection could be operated in every county and the public insured a pure, wholesome milk-supply.

TUBERCULOSIS.[1]

By J. J. Oberst, M.D.C.,
SAUKVILLE, WIS.

When I promised our Secretary a paper on the subject of tuberculosis I had in mind some experiments which at that time were being conducted by the Wisconsin Experiment Station, and in which I co-operated, hoping that by this time I might be able to report to you some interesting developments with reference to the same.

The experiments were made on a herd of considerable size, consisting of high-bred Guernseys and graded stock, in which the disease was well marked before the suspicion of the owner had become aroused by the developing symptoms.

The chief objects of these experiments were for the purpose of studying the question of restricting tuberculosis by means of proper isolation and hygienic management. Since the former have not been completed, but are to be continued during the coming season, I do not feel justified in publishing any details of the results obtained without the consent of the Experiment Station authorities, save that so far they have been generally satisfactory, considering the existing circumstances, and promise a satisfactory issue, provided they are persisted in for a sufficient length of time.

Since the different phases of this horrible disease are more or less well known to you, I do not deem it necessary to give a lengthy description of the same, since there has been so much written on this subject by most able and prominent men of both the veterinary and medical profession, and with my limited amount of personal experience with this malady I would be unable to add anything particularly new or original.

In view of the foregoing I shall therefore confine my remarks to calling your attention to some most deplorable circumstances in connection with tuberculosis in this State, which are of great importance and demand our earnest consideration. When we read the reports from some of the Eastern States we are astonished at the almost incredible number of cattle, especially of the finer breeds, which are said to be affected and are destroyed as tuberculous. In some of these States more or less stringent laws have been enacted, providing for the destruction of tuberculous animals, with a view of eventually effecting the eradication of this ever-present, universally devastating plague. In some localities the products of animals affected with the disease are strictly prohibited from being used as an article of human food by legal measures, thus affording a much needed protection to the people against infection from that source.

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[1] Read before the meeting of the Wisconsin Society of Veterinary Graduates, Madison, February 5, 1897.

In January last the New York Board of Health adopted an amendment to its sanitary code declaring tuberculosis an infectious and communicable disease, dangerous to the public health. Reports of all cases hereafter must be made to the sanitary bureau in writing, when the same will be treated in the same manner as cases of diphtheria and scarlet fever. If similar actions were adopted all over the United States with reference to human and bovine tuberculosis, and the same were strictly and conscientiously carried into effect, the number of deaths caused by the destructive action of the tubercle bacillus would become rapidly diminished and the further dissemination of this.most dangerous of all contagious diseases as far as practicable rendered an impossibility.

I say the most dangerous of all contagious diseases because it affects both man and beast alike, and is frequently transmissible from animal to man, as where animals having the disease in an advanced stage are kept in close quarters, devoid of sunlight or a free access of fresh air, where the drainage is but imperfect or perhaps entirely wanting, thus causing the liquid portions of manure and other decaying substance to accumulate, and in their process of decomposition give off noxious and repulsive odors, which in their turn offer a favorable medium for the proliferation of all disease-producing germs. If anyone should attempt to enter such a barn after the same had been closed up for some time, during which the atmosphere therein had become impregnated with the germs of disease, he would be almost certain to become infected, especially if he should be suffering from any inflammatory disease of the air-passages.

That a frequent source of infection lies in the indiscriminate use of milk from tuberculous cows goes without saying, as there are numerous cases on record where the .tubercle bacilli have been discovered in the milk from cows, which, to all external appearances, seemed to be in perfect health and condition; also in the use of meat from tuberculous animals for human food we cannot fail to recognize the danger of infection.

Transmission of the disease from man to animals may also occur where persons suffering from pulmonary tuberculosis in an advanced stage are attending the animals, and while thus engaged carelessly allow the tubercular matter coughed up from their diseased lungs to fall upon the food, and thus be taken into the alimentary tract of the animals while eating; or the expectorated matter may fall upon the floor or other places, where it becomes dry and pulverized, when afterward, through some mechanical cause, it is stirred up into the air in the form of dust, and the germs thus liberated, if in sufficient proximity to the animal, are during the inspiratory act taken into the air-passages of the same, where they become lodged and start the disease.

That tuberculosis has not yet gained such an extensive distribution in this State as in the East I am happy to acknowledge, yet I do believe that if thorough investigations were made by proper and competent investigators the number of animals found to be affected with the disease would greatly exceed the general expectation.

To my knowledge there have been no provisions made in the laws of this State requiring the destruction of animals suffering from this disease in an advanced form, so as to exclude any probable chance of recovery, nor to provide for the quarantining of those less dangerously diseased; nor is any considerable amount of protection afforded to the people against infection through prohibiting the use of products from tuberculous animals as an article of food. Under such inadequate legislation the disease is offered every opportunity for its rapid dissemination, as animals may be bought and sold from herds in which the disease exists. Even though the animals referred to may, to all external appearances, be in a state of perfect health, they may yet be affected with the disease in the incipient stage, and by such a transaction carry it with them into another previously healthy herd, and perhaps cause members of that herd to become diseased before any symptoms develop that attract the attention of the unsuspecting owner.

That numerous cases of infection to the human family in this State are caused by the indiscriminate use of meats from tuberculous animals is a deplorable fact which cannot leave any room for doubt when we consider the criminal indifference with which such diseased meats are prepared and sold for human consumption. This statement may perhaps appear to you to be greatly exaggerated; but kindly allow me to relate to you a little incident which occurred during the past summer, and you will at once understand my reason for taking this view of the subject. During the first part of August last, more out of curiosity than suspicion, I was requested by Mr. A. to inspect some casings (bovine intestines prepared for the purpose of being used for sausage coverings), which, as he said, were studded with little nodules. On examination I found nearly all the contents of a 200-pound barrel to be affected with pearl-disease. I informed Mr. A. accordingly, and cautioned him against utilizing any of them for any purpose, which advice was observed. A specimen from the same intestines was sent to Prof. H. L. Russell, of Madison, for microscopic examination, which later resulted in the verification of my statement.

On the same occasion the gentleman informed me that while in a large slaughtering and sausage manufacturing establishment in one of the principal cities of this State, where he had been employed for several successive years, they had killed a large number of cattle in which the intestines, peritoneum, and pleuræ were covered with tubercular growths, and that they had often found abscesses and pus-cavities in the various internal organs, especially the lungs, but that in no case was the carcass rejected, but the whole was utilized and sold chiefly in the form of sausages.

Other persons who had lived in a large city informed me that they had frequently observed some of the glandular organs of animals hanging in meat-markets, and had even themselves bought and consumed parts of them after the remaining portions, which were filled with abscesses of varying sizes, had been cut away and thrown into the swill-box, not having any idea of the danger to which they had thereby exposed themselves and others.

Should not we, in the light of such horrifying evidence, as true veterinarians and preservers of the public health, which in fact the true veterinarian is, join in a united and untiring effort to strive toward obtaining proper legislation by which we may be enabled to call an energetic halt and effectually banish from our midst this unmerciful slayer of both man and animal? I do not wish to be understood as one in favor of slaughtering tuberculous animals by the wholesale, as I believe that an animal having the disease in the incipient stage has every chance to recover and become practically cured, provided it receives proper care in regard to food and drink and general hygienic management. All animals which have become so badly diseased as to be beyond recovery should be absolutely destroyed, those less dangerously diseased put under strict quarantine regulations. The products of tuberculous animals should be strictly prohibited as an article of food unless they are rendered sterile, so as to remove all probable danger of infection either to the human or animals. The local boards of health should be composed of members having sufficient knowledge of contagious diseases to enable them at least to distinguish the most prominent symptoms of such diseases, instead of, as is frequently the case, having no knowledge fitting them for the office to which they have been elected, and consequently being unable to discharge their duties in a proper manner. The right to order and impose a quarantine on tuberculous animals should be extended to the local boards of health, and none but legally qualified and duly registered veterinarians should be allowed to make any tests or in any other way attempt the management of tuberculous animals. Not until we are aided by legislation will we be able to succeed in our effort to restrict the spread of this disease. The present law leaves too much chance for being disobeyed, and if not altered in time we may expect within a few years the same percentage of tuberculosis among both man and animals in this State, as is at present reported from the East. Therefore, let us work in time, and not remain idle until the enemy appears in such overwhelming numbers as to greatly diminish our opportunity to gain a glorious victory.

AZOTURIA.

By John R. Hart, V.M.D.,
PHILADELPHIA.

(Concluded from page 386.)

Treatment. Treatment presents to the veterinarian two grand problems for his solution; first, to discover its nature, and, second, to devise its cure. A knowledge, therefore, of the disease examined, as well as those with which it may be confounded, is essential.

Diagnosis lies before us as the basic principle of the practice of medicine. An intelligent conception of a disease is a prerequisite to the application of the medicines necessary to effect its removal, and also to prevent confounding it with others whose resemblance to the particular disease makes it difficult to distinguish them. Its complications must be guarded against; its character, which subjects it to various accidental influences, must be carefully considered and thoroughly known. The man who is equipped with such knowledge, with the principles applicable, and with sound discretion and judgment enjoys immeasurable advantages over him who lacks them, or whose mind is so preoccupied by theory as to make intelligent treatment a difficult if not impossible task. The treatment in one stage may be of no avail in the other. This is plainly demonstrated by the consensus of opinion of the different veterinarians in their modes of treatment. Some bleed with success, while others condemn this practice; some purge in all cases, some in only a few. With a success that varies, some treatment may be in place and some most decidedly out of place. The per cent. of recoveries should demonstrate and guide as to the proper mode of treatment.

There was a time when veterinarians carried a ball of aloes and calomel with them when called to a case that showed a disposition to constipation, with sluggish gait or stiffness in the limbs, as the owner put it. The ball was given with most excellent results and often no other treatment was required. This was the time when one or two balls were given once or twice yearly. While it was an old rut, in my mind it was a good one that would perhaps be well to practise in this day of theory.

While some animals will recover under any and all circumstances in a great many diseases, as they seem to have immunity from death, as they have immunity at times from the effects of the wrong treatment, as here is a treatment in azoturia and case reported as making a good recovery.

℞.—Aloes	ʒvij.
Hyd. Chlo. Mit.	ʒj.

With tincture of opium, to be given as often as necessary; to relax the bowels, is the duty of one, while the other is to constipate. While it is known that tincture of opium will increase the secretions of the skin, it will dry up all other secretions in the body and will produce, if continued repeatedly, cerebral convulsions.

In regard to purgative medicines in this disease, I assure you that I have had a larger per cent. of recovery among animals that did not respond to the action of a cathartic than I had from those which responded promptly to the cathartic. It was my custom to give to all the animals. This led me to consider well and finally to discontinue their use, with much better results, as the fecal matter had done all the harm it could possibly do at the time the animal was taken with the disease; our aim should be to get rid of the various poisons that the system is overloaded with.

Bleeding, as pursued in the human family, is resorted to when there may be an overloaded capillary circulation in diseases of the brain and spine, or at the point of uræmic convulsions, with great success; in other stages of disease similar to this bleeding would more quickly kill, perhaps, or if there was a tendency to clot in the circulation bleeding would be hurtful and dangerous.

Now as to treatment. The one point most to be observed in the treatment not only of azoturia, but in all diseases, is to know the pathological condition of the animal when seen.. As we all know that all medicines are classified, it is not supposed that of these medicines in that particular class that we desire to use in the disease that they are classed to remedy. It is more important to know the stage the animal is in, as what would have the desired effect in the acute or inflammatory condition would not only be useless in the second stage, but would aggravate the disease, perhaps, like bleeding.

While a cathartic in one stage would be the proper remedy, in the next stage it might induce irritation that would kill the animal. The oil laxatives would be more beneficial. If they do no good, they would do no harm, but would have a nutritive effect. The question may be asked, Why give oil for nutritive effect, when it was too much feeding that caused the disease? The answer is that the very good living that assisted in causing the disease and in weakening the alimentary canal that nourishment should be administered which would be quickly absorbed. Experiments show that large amounts of oils given to animals leave no trace after death, while a cathartic too often aggravates the irritation already existing and would remove water from the blood—they would dehydrate the blood and consequently the tissues. In some cases cathartics will answer, but I would consider aloes out of place in any congested condition of the bowels, as it would increase the irritation. The most useful remedy for a congested liver or kidney is calomel, as it stimulates the ends of the secretory nerves in the cells, as well as relieves the overloaded capillaries, and will diminish putrefaction and eliminate urea. It may be used in any inflammation, as it is eliminated by all secretions, or calomel with soda bicarb., and continue the soda bicarb. in tablespoonful doses every two or three hours in the drinking-water. We, of course, know that the blood is alkaline, and that one of the poisons that is circulating in the blood in this disease is acid in excess. Any alteration from its natural constituent would cause a chemical change in the blood. Now, to overcome this condition, what is the next best thing to do? if again to alter by a chemical change, we would here use soda bicarb., as the soda bicarb. will eliminate uric acid from the blood. I would recommend small doses of the soda bicarb. in conjunction with the other treatment of diuretics, as too much medicine of an alkaline action may cause other chemical reactions, while the smaller doses would neutralize the acid in excess as well as assist digestion and absorption. The alkalies insure the gradual oxidation of the organic constituents of the fluids. They are also eliminated by the kidney and are antacids.

The diuretios most needed are those that act more on the kidney through the circulation, as by so doing you remove the uric acid and effete material that is circulating in the blood. Of this class I would recommend buchu, juniper spt. æth. nit., are the sedative class, as they stimulate the ends of the vaso-constrictor nerves in the vessel walls. If you have uræmia, the salts of potassa should not be used as a diuretic, as these salts determine intoxication, while the sodium would be used with safety. Where there is much excitement I have used in conjunction with diuretics fld. ext. hyoscyam. It is soon eliminated by the urine, it will also destroy the irritation that arises in the bladder. In these cases hyoscyamus acts as a hypnotic and will assist in destroying fibrin and acts very quickly on the nervous system as a sedative. Chloral hydrate is good in over-excitability or with a tendency to convulsions. Do not repeat too often. Chloroform inhaled will have the same effect in controlling the convulsion. Fld. ext. colch. I have used with success in small doses, after the bowels respond, as colch. in the over-fed or torpor of portal circulation, or where we have constipation and deficient excretion of the liver. Colch. will relieve by setting up an elimination process. It will also eliminate uric acid. Strychnine should not be used in paralysis of this kind. Its use is injurious in acute cases involving any alteration of the spinal cord, as it softens the spinal cord and causes the animal to die in convulsious. If you use it in early rigidity, it is without avail; if too late, there is fatty degeneration of the muscles. It is good only when the paralyzed limbs are completely relaxed.

Ergot is good in late stages where there is a tendency to congestion of the spinal cord or the meninges.

I use mustard over the loins in all cases. I have never found slings of any use, as they seem to excite the animal. As it does not seem common sense to hang an animal in this disease to cure him, I do not use them. With a good bed under him I allow the animal to lie down and turn him from side to side every two or three hours. When the urine does not clear up in two or three days it is not favorable. If the urine does clear and is stringy, there is a possibility of albumin or some complication in the spinal cord.

If we would instruct our clients in a system of feeding their animals and how to care for them while at rest, we would save ourselves considerable annoyance and trouble as well as gain a reputation and the full confidence of our clients.

They should be instructed in all matters pertaining to the stable, as I do not think there is one in our profession who is guilty of congratulating himself when called to attend an animal on the street suffering with azoturia. I have charge of a few large stables and cases of azoturia in them are rare. The animals are given frequently in their feed Glauber salt with a light diet twice weekly. All these animals are in good condition. I think Glauber salt will prevent effete matter from collecting in the blood.

I think if some of our colleges would take an animal or two and allow them to stand for one or two weeks as may be required, and feed to them the full complement of food at each meal; then weigh the excretion, test the urine at intervals, then change the food as circumstances may require to find out what composition in food that is retained brings on this poisonous condition, compare the income with the outgo, the ingesta with the excreta, they would learn not only what part of the ingesta is retained in the body, but would detect substances in the excreta not present in the food, and would learn all the changes which the body undergoes under the influence of the food.

It is possible, and would it not be wise to first discover what the muscles have lost of their nutritive elements, then increase this loss to the muscles by treatment identical with what is lost to give them tone?

At our next annual meeting, if not prevented by some unforseen cause, I will endeavor to give a detailed account of the conditions of organs and what is found, as well as conditions of blood and what is found with such assistance as may be rendered by the division of bacteriology.

A CASE OF ACROMEGALY IN A DOG.

By R. H. Cunningham, M.D.,
ASSISTANT DEMONSTRATOR IN PHYSIOLOGY, COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY, NEW YORK.

Since the publication in 1886 of Marie's[1] description of two cases of the disease to which he applied the name "acromégalie," over a hundred more or less authenticated cases have been described as occurring in man. That this disease might affect in a more or less typical manner some of the orders of the lower animals has no doubt occurred to many observers ere this; but I have not been able to find in any of the medical or veterinary literature any report of this disease having been observed in the lower animals. Consequently, the case of a dog described in this article is all the more interesting, and, as far as I am aware, extremely unique.

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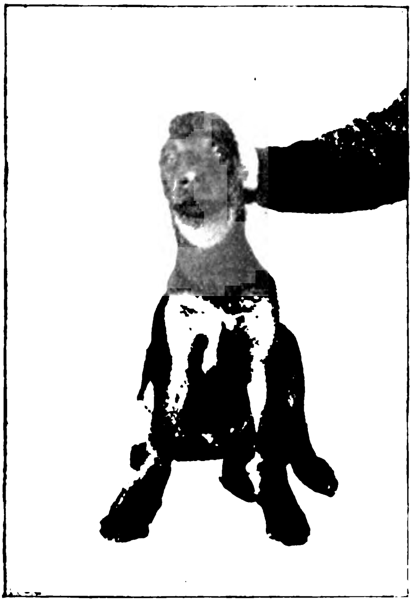
[1] P. Marie: Revue de Medicine, vi, Paris, 1886, p. 297.

Briefly, this dog, whose photograph is reproduced in the accompanying illustration, came under my observation in the Physiological Department of Columbia University at the College of Physicians and Surgeons, New York, during the latter part of May, 1895, and was such an extraordinary looking beast that I determined to keep the animal for a number of weeks and observe him. Apparently, this animal was a well-muscled member of a mongrel breed, probably a mixture of the black-and-tan and the hound. Its permanent canine teeth were well developed, and its age was very probably over a year. Its weight was 13.25 kilos. A more sluggish and lazier canine specimen I have never seen. To anyone familiar with the clinical picture of acromegaly in man, the most superficial examination of the animal would instantly



In taking this photograph it was necessary to steady the animal by the back of the neck. The right paw is about two inches in advance of the left, which is not advanced to the foreground, but is in a vertical line with the neck.

remind one of that disease, especially when due allowance was made for the differences between the human facies and the canine facies. The markedly enlarged forefeet, with thickened phalanges, bearing claws apparently too small for them, and the broad face, with the lower incisors overlapping the upper, were very striking and certainly very forcibly recalled the clinical picture of acromegaly. The hind feet were not quite so enlarged in proportion to the size of the leg, but both the fore and the hind feet were considerably broadened and thickened, both the soft parts and the bones appearing to participate in the enlargement. Prognathous was not noticeable, but when the lips of the animal were separated the inferior incisor teeth considerably overlapped the upper. The margins of the orbits, the malar, and the nasal bones appeared to be much thickened. The palpebral fissure of both eyes was narrow, and the eyes of the dog appeared extremely small for so large a head.

In spite of the apparent development of the muscles of the limbs, the general strength of the animal was diminished, and the exceedingly weak muscular efforts became very perceptible when the animal was held and kept from moving about the room.

After observing the animal for three weeks it suddenly exhibited signs of a bronchitis and died in the course of two days, the immediate cause of death proving to be an acute broncho-pneumonia involving a considerable portion of both lungs. At the autopsy the costal cartilages were found to be partially ossified, chiefly in the neighborhood of the costo-chondral articulations. The lower ends of the radius and ulnar were enlarged and considerably eburnated. The ends of metacarpal bones and the ends of phalanges were also enlarged and very markedly eburnated. Although the shafts of these bones did not seem to be much enlarged, they were extremely hard externally and quite vascular in the central portions of the bone. The periosteum and other soft parts covering these bones were much thickened.

The thyroid gland was the seat of an interstitial thyroiditis, and both lobes were markedly reduced in size. The right lobe weighed but 0.5 gramme and the left 1.1 gramme. No accessory thyroid bodies could be detected in any of the situations in which they frequently occur. The right thyroid lobe, as one would expect from the above-mentioned weight, was more indurated than the left, but even the latter was so indurated that when it was being cut one could easily imagine that a firm fibrous tendon was being divided by the knife.

The thymus gland was not only present, but was of considerable size, weighing 10.80 grammes after the surrounding fat had been removed as closely as possible. Sections of the gland under the microscope showed that in nearly all parts the structure was identical with that of developing thymus, in which the ramifying acini contain numbers of nucleated epithelial cells. Great vascularity of the gland was also very noticeable.

On attempting to trephine the skull preparatory to removing the calvarium with the rongeur forceps it was found that the bones of the skull were much thickened and possessed extremely hard and brittle internal and external tables. For instance, at the left parietal protuberance the parietal bone was 6 mm. in thickness. The diploë of the thickened bones was very vascular and was readily cut by the forceps after the hard outer table had been broken. The brain and spinal cord exhibited no perceptible changes, but the condition of the hypophysis was interesting. It was very vascular and œdematous, being very similar in appearance to that of a dog that has survived the removal of the thyroid body for five or six days. As the writer had not at that time compared the weight and the dimensions of the dog's pituitary body with the body-weight, it was difficult to affirm whether or not the pituitary in this case was in reality enlarged. Since that animal's death, however, a number of such comparisons have been made on dogs of about the same weight as that dog, and from the results of these comparisons I judge that the pituitary body of this dog was about one-third larger than that of a normal dog of about the same weight. Under the microscope the structure of the pituitary body and its mantel did not very profoundly differ from that of the pituitary of a normal dog. In the former preparations, however, the arrangement of the epithelium into fairly well differentiated acini, which frequently possessed a small lumen surrounded by cylindrical or by polygonal cells, was more decided than in the hypophysis of the normal dog. The small cysts were more numerous also, and some of them contained a small amount of colloid. An increased vascularity of the body was also noticeable.

The heart, spleen, and suprarenal bodies appeared to be normal. Broncho-pneumonia was thus the immediate cause of death.

When the above-mentioned pathological changes in the thyroid gland, the hypertrophy of the thymus gland, the eburnation and the enlargement of the bones, and, lastly, the moderate enlargement of the hypophysis are considered, I think that there is scarcely any doubt that this dog was a true example of canine acromegaly.

Until the autopsy it was impossible to make more than a provisional diagnosis, for it is well known that some growing young dogs frequently have large feet, long legs, broad heads, and bodies that appear quite out of proportion to their legs. Such dogs, however, do not present marked interstitial changes in the thyroid gland, hypertrophied thymus glands, and thickened and eburnated facial and cranial bones. Consequently they may be excluded. Similarly, canine rickets, the only other disease that I know which can produce in the dog a clinical picture much resembling that exhibited by the dog described in this paper, can be excluded, owing to the character of the changes found in the bones. Before the autopsy it must be admitted that it was impossible to exclude rickets; but as soon as the thickened, eburnated bones were cut, sawn, and otherwise examined it was evident that the osseous changes were of a totally different kind to those so characteristic of rhachitic bones. Changes in the thyroid gland have been noted by Trachewsky, Lanz, and others, in rickets, but such a profound degree of thyroid atrophy, accompanied by hypertrophy of the hypophysis and by hypertrophy of the thymus gland, was not detected by any of those writers.

It is thus evident that acromegaly was about the only disease that could be accompanied by the above briefly mentioned symptoms and pathological alterations, and undoubtedly the animal was a genuine example of canine acromegaly.

A decoction of tobacco is in use in one of the experiments now under trial for dipping sheep.

Officials of the Belgian army are making inquiries among our horse-breeding centres for horses suitable for military service.

Bits to prevent cows from sucking their own milk are now in successful use.

Great Britain now demands that all dogs intended for shipment to that country must first obtain a license from the Board of Agriculture at 4 Whitehall Place, London, S. W.

Japan has become a buyer of our horses, large consignments being made from Seattle, Washington.

Harrison county, Kentucky, is the seat of an outbreak of glanders now being inspected by the State veterinarian. Eight horses have already been destroyed. The State allows compensation for all animals destroyed.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS,
PRINCETON, N. J.

SOME STATISTICS IN REGARD TO TUBERCULOSIS.—In the first number of the *Archiv fur Thierheilkunde*, for 1897, Dr. Lungwitz, of Grossenhain, Saxony, makes an interesting report in reference to tuberculosis, from which the following is taken:

From June, 1893, until the end of February, 1895, 17,202 full-grown cows (and female calves) were killed in the slaughter-house at Leipzig. Of these 119 were affected with tuberculosis of the udder. In not one of the 119 cases was the udder alone affected. In every case other organs were involved. In 92 cases tuberculosis was general. In the remaining cases it was more or less localized. In only two cases was tuberculosis limited to one other organ besides the udder—in one the bronchial tubes and in the other the mediastinal tubes were involved. From this Dr. Lungwitz draws the conclusion that primary tuberculosis of the udder seldom occurs. The fact that in a period of twenty-one months out of 17,202 cows none were found with tuberculosis of the udder without other organs being involved justifies us in assuming that the occurrence of primary tuberculosis of the udder is very rare. When tuberculosis of the udder is present, tuberculosis of the body is, as a rule, general—that is, distributed over a large number of the organs in several cavities of the body.

As a practical hint for cattle-inspectors he urges that when tuberculosis of the udder is present especial care be exercised in examining the animal for general tuberculosis. Tuberculosis of the uterus is usually connected with abdominal tuberculosis or with general tuberculosis. From August, 1894, until March, 1895, Dr. Lungwitz paid especial attention to the cattle killed at the slaughter-house in Leipzig which were affected with peritoneal or general tuberculosis. In these eight months 267 cases of peritoneal or general tuberculosis were noted; of these 155, or 58 per cent., were affected with tuberculosis of the uterus; 264 of the 267 showed tuberculosis of the peritoneum, and of these 264, 152 (57.9 per cent.) had tuberculosis of the uterus. As his general conclusion from these statistics and his observations, Dr. Lungwitz states that tuberculosis of the uterus usually includes tuberculosis of the oviducts, and is usually accompanied by tuberculosis of the skin of the stomach (Banchfell) without general tuberculosis being present. Tuberculosis of the uterus was also found in calves which had never borne young or been fertilized.

Concerning tuberculosis of the serous membrane in swine, the investigation was in regard to the spread of tuberculosis in the body of swine when tuberculosis of the serous membrane is present. Dr. Lungwitz gathered statistics from July, 1893, until February, 1895. During these twenty months he observed 141 cases of tuberculosis of the serous membrane; 134 times (95 per cent.) general tuberculosis was present. Of the 141 cases the pleuræ were affected 113 times, the peritoneum 15 times, and both pleura and peritoneum 13 times. In all 178,739 swine were killed during this period, and 0.08 per cent. were affected with tuberculosis of the serous membrane.

Dr. Lungwitz sums up his observations in three general conclusions: 1. When tuberculosis of the udder is present in cows the tuberculosis is in almost all cases a general one. 2. That tuberculosis of the uterus in cows is a very common phenomenon, and that it usually involves peritoneal tuberculosis. 3. That tuberculosis in swine is mostly generalized when tuberculosis of the serous membrane is present.

SAND IN THE STOMACH OF RUMINANTS.—In the summer of 1896 the frequent showers and extraordinarily heavy gusts of rain caused a good deal of sand to get into the fodder. When this green fodder was fed to the cattle disturbance in digestion was very frequent in ruminants in this neighborhood. The symptoms are essentially those of traumatic indigestion—loss of appetite, constipation, or even violent diarrhœa, general dulness, difficulty in breathing, and general weakness, which sometimes shows itself in an unsteady gait. An especial symptom was the arching of the backs. The paunch (first stomach) seems very hard to the touch and shows no movement of any kind. I have always given the usual treatment for indigestion, especially tinct. veratri in double doses. I have always had good results, and up to date have only had to kill one cow. In the stomach about six kilogrammes of sand were found, and stones to the size of a pea.—*Thierärztliche Centralblatt*, November 15, 1896.

REPORTS OF CASES.

TRAUMATIC PERICARDITIS IN A COW; RECOVERY.

By W. L. Williams, V.S.,
PROFESSOR OF SURGERY AND OBSTETRICS, NEW YORK STATE VETERINARY COLLEGE,
ITHACA, N. Y.

There is usually so little to be hoped for in traumatic pericarditis in the cow that the following observation seems worthy of record:

The patient was a valuable Jersey cow in vigorous health and in milk.

About January, 1896, I was called to attend her for tympany, which was moderate and accompanied by painful respirations with grunting during expiration, and a general stiffness and disinclination to move, which led us to suspect the ingestion of a pointed foreign body. The rumen was punctured, saline purgatives with carminatives administered, followed by apparent recovery.

About four weeks later I was recalled, and found the patient dull, stiff, disinclined to move, feverish, dry muzzle, inappetence, tumultuous pulse, intermittent and irregular, with abnormal pericardial sounds. The symptoms were referred to the prior attack of tympany, and traumatic pericarditis diagnosed and an unfavorable prognosis given. Small doses of digitalis were administered three times daily, and within a few days distinct improvement was noted, the appetite returned, febrile symptoms abated, the movements became more free, and the milk flow became normal.

Early in June following I was again requested to examine the animal, and found a prominent tumor beneath and to the right of the sternum in the anterior angle of the space formed by the ensiform and last costal cartilages. The tumor was fluctuating, and, being punctured, about one pint of grayish, very fœtid pus escaped. Exploring the cavity with the finger, two irregular pieces of bone were found, the larger being one-half by three-quarter inches, and sharp. Both were apparently originally of the same piece, and in texture and general appearance had apparently come from a rib or vertebræ, probably from a porterhouse steak, the bone of which had found its way into the kitchen scraps which were fed habitually to the cow.

It seems quite certain that a bone had in this manner been swallowed by the cow, induced the indigestion first noted, penetrated the rumen, passing forward to the right posterior surface of the pericardium, causing pericarditis, after which it travelled to the right and downward, emerging partly decomposed at the point described.

LUXATION OF THE METACARPO-PHARYNGEAL ARTICULATION IN A HORSE.

By W. L. Williams, V.S.

The comparative rarity of luxation without fracture in horses renders the following case of interest:

The patient was a common, medium-sized animal, used for wholesale grocery delivery, and while being driven at a trot over a railway crossing caught her left forefoot between the railroad rail and the crossing board, causing her to fall heavily forward on the imprisoned member.

The foot was pried loose with a crowbar. The animal got up, when the driver noticed that the fetlock-joint was out, but was readily replaced by him, and I was notified by telephone that the patient was on its way to our infirmary with its leg out of joint—"walking." On arrival at the infirmary the animal was walking comfortably without noticeable limping, no swelling or other injury about the joint being visible.

Picking up the leg and flexing it, the phalanges readily turned outward at a right angle to the metacarpus, and was as readily replaced. In other directions there appeared to be no abnormal mobility. The luxation and replacement caused no apparent pain or discomfort to the animal. She was walked home—a few blocks away—and the affected member placed in a firm plaster-of-Paris bandage reaching near to the carpus, which was allowed to remain for a week, the case going on without incident, and at the end of that time the bandage was removed and the animal returned to her accustomed work.

A POST-MORTEM REVEALING TWO SPLEENS.

By James M. Richardson,
HOUSE SURGEON, NEW YORK COLLEGE VETERINARY SURGEONS.

On June 5, 1897, a cat entered the hospital with no other history except that it had not eaten anything for three or four days. By manipulation the case was diagnosed as one of obstruction of the duodenum, and the cat was given warm enemas and castor oil.

On June 11th the animal died in awful agony, and post-mortem showed that what had been taken for an obstruction was a second spleen, which appeared to be perfectly normal. This second spleen was surrounded by a mass of adipose tissue suspended in the mesentery of the small intestines. The misplaced spleen weighed three and one-quarter drachms. There were no abnormal changes to be seen in any of the other organs except a number of small ulcerations throughout the small intestines.

DR. GEORGE P. TUCKER, of Lincoln, Neb., reports a yearling colt presenting evidence of digestive derangement for a period of from six to eight months, gradually increasing until death from starvation ensued. An autopsy revealed a loop of intestines about twelve feet from the stomach, which had perforated the great omentum and rolled on itself, forming a fibrous ring two inches thick surrounding the loop, so there was but little if any free portion of the omentum. Anterior to the loop the intestines hypertrophied, and at the loop a cavity had formed as large as the stomach. Posteriorly, the intestines were of normal size, with merely a peculiar mottled or pigmented appearance as an additional alteration.

DR. A. JASME reports the following case: Draft mare while rolling in the box-stall had about two feet of the handle of a broom to enter the rectum, breaking off and being removed by manual force by the owner. The wound was large enough to pass one's hand through the upper part of the rectum, followed by a very œdematous condition of the parts, but under antiseptic injections recovered in three weeks. A recent report from the case would indicate that a fistulous opening still remains, allowing of a slight discharge at times.

DR. OTTO NOACK reports a case of tetanus in a cat, following castration. Operated upon on June 5th. On the 14th showed stiffness of limbs, tail stiff and carried upward, moving around with great difficulty; two hours later stiff all over; ears stiff and drawn together; skin between them drawn in folds; unable to move; could be taken up and put down like a wooden block. If placed on the side no movement could be seen. Later in the day trismus is complete, animal unable to swallow, and the eyes only indicating life at all, death ensuing the same evening.

Bursitis Intertubercularis. Texas pony, black, male, eighteen years of age, 13 hands-high. Sudden soreness after fast driving; at rest the foot is placed backward and resting on toe only; on moving the leg is held in a peculiar position; lower part of the limb is lifted a little from the ground, making at the knee with the upper part an angle of 135 degrees, but no action of the forearm indicating involvement of the flexor brachii; on manipulation from forward backward intense pain at the shoulder is produced, the flexor brachii being the seat and its bursa inflamed. Treatment: sharp liniments were ineffectually employed, afterward repeated blisters of red iodide of mercury, 1 to 3, brought the desired result, with rest of some nine weeks.

EDITORIAL.

OUR BROADEST FUTURE IS YET BEFORE US.

Since the advent of the bicycle and electric car the statement has been made that horses will soon become a thing of the past, and veterinary services will be required no longer. The same statement was made when steam roads were first operated, but experience shows that far more horses were required to carry on the commerce that developed as a result of improved facilities for transportation than could be used under the old system, when all inland travel was dependent upon horse-power, and local wants were met almost entirely by local products. While it is true that some horses have been displaced by mechanical agencies, it is also true that the demand for horse-labor in other directions has increased correspondingly and in proportion to the activity of the commerce of the country. For the past few years certain classes of horses have been very cheap, and this is directly attributable to the sudden increase in their production, an increase that was far beyond all possible demands, and to the general depression of all business which greatly reduced the demand for horse-labor as well as for that of man. But good horses are and always have been in constant demand at remunerative prices, and all well-informed horsemen admit that the demand for horses of good quality is greater than the supply. Horse-breeding was such an exceedingly profitable occupation a few years ago, and there was such an active demand for horses of a very inferior type, that anyone with a little capital could engage in the rearing of horses and make money. That period might justly be compared to the boom-period of a Western town or to the rush into any branch of industry that is apparently simple, easy to carry on, and promises large returns. But now the business of breeding horses is established on a better, sounder, and firmer basis. The breeders of this country are beginning to understand that it is only by the exercise of much knowledge, good judgment, and constant watchfulness that horses of superior quality can be produced, but that when these requisites are properly applied the reward is satisfactory. Horses will always be used for draught-work in cities and in country ; they will always be used for riding and driving ; and racing, the sport of kings, will always continue.

But the horse might become entirely extinct, and an enormous field for the employment of veterinary knowledge and skill would still remain. According to the statistics of 1896 the horses of the United States number 15,125,057, and are valued at more than $500,000,000, while the mules of the country are worth $103,000,000 more. The cattle of the United States number 48,200,000, and are worth $873,000,000. The sheep are worth over $65,000,000, and are rapidly increasing in number and value. The swine number about 43,000,000, and are worth more than $186,000,000. The total value of the several classes of live-stock mentioned amounts to $1,727,926,084. This total is considerably less than it has been for some years, and than it will be when the general business conditions improve and live-stock values respond to the resulting stimulation. The export trade of the United States bears principally upon the live-stock industry, and exports of horses, cattle, meats, and dairy-products are increasing from year to year.

No, the field of the veterinarian is not bounded by any prospective limitation of the horse's usefulness. It includes the cultivation, care, and protection of animals that supply us with our most nutritious and expensive foods; with many of the luxuries as well as necessaries of our diet; with warm clothing for our body, head, hands, and feet; with many of the pleasures and comforts of life; with agreeable, healthful, and elevating recreation, as well as those that furnish the most common means of transporting freight.

TO OUR SUBSCRIBERS.

SUBSCRIBERS to the JOURNAL will bear in mind that our rule of *all subscriptions in advance* has been rigidly enforced since the December, 1896, issue. All subscriptions terminate at the expiration of the period paid for. This rule applies to all. We always send notice of termination by a bill for the new year, and also a receipted acknowledgment for moneys received, and a reference to this or a postal card inquiry will inform you when your term expires. We have adopted this rule after the most mature consideration of every aspect of the situation and the most severe monetary losses in the history of the publication of the JOURNAL. This system has been adopted after some very unpleasant experiences with our fellow-veterinarians to whom credit has been extended for from one to five years, and we hope by this means to avoid a repetition of such unpleasantness in the future.

ON TO NASHVILLE.

BUT one more issue of the JOURNAL will reach our readers before many of them will be on their way to Nashville. The programme is sufficiently well developed to assure all who may attend a feast of professional good things that shall enrich them a thousandfold. Every detail for our comfort is being planned by the local Committee of Arrangement. Hotel accommodations have been provided for, meeting-rooms obtained, and the hospitable doors of Nashville swing outward for our entrance. We have many valued members of our Association in the South, and there are many excellent members of the profession in that sunny region outside of our roll of members. They have all, in a greater or lesser measure, been pioneers in their calling in that rapidly developing section of our country. They are worthy of our support, our assistance, and our best thoughts, and the JOURNAL sincerely asks for the greatest outpouring of our members that we have seen for years. Let us go down among these fellow-colleagues and warmly second and aid every effort upon their part. Let us enroll in this region a larger number of these worthy representatives that we may more fully merit the name of "National" which we represent.

Let every State, city, and local association of veterinarians send duly accredited delegates, and every school, station, or branch of work of our calling be represented in this important gathering of our members, which will there deliberate and plan for the wiser and better advancement of our calling.

Our Secretary is tireless in his efforts to make Nashville a second to Buffalo, and everyone can strengthen his hands by urging the largest attendance; by suggestions as to the programme; by mingling in discussion with our brethren from all over this land, and thus accomplish the first great result of our efforts—higher education.

SURE TO HAVE SUPPORT.

THE movement of Secretary of Agriculture Wilson, through our foreign representatives, to remove some of the barriers raised against our live-stock and animal food-products will meet with the warmest approval of the people of our entire land. We are to-day the growers and shippers of the best animal food-products of the world. Our Western prairies are practically free from diseases harmful to meat-products. Our disposition is to send only the best we have for foreign consumption, and our system of sanitary inspection of all animals and their products which are sent abroad has attained such a state of perfection that there can no longer be but one reason why these barriers are maintained, and that is that they do not want our products at all, if they can trump up anything in the nature of an excuse to keep them out. According to their own statistics, their own live-stock at home is far more diseased than ours, and their system of general inspection is no better than our own, and we are not disposed to longer stand and see our products shut out and the exports of these countries landed in profusion on our shores without an objection being raised. Let every veterinarian sustain Secretary Wilson to the utmost, as these embargoes are injuries to our own welfare, not to speak of the unjust reflection on the best veterinary sanitary service our government has been fortunate to have in its employ.

MOVE RIGHT ALONG IN THIS LINE.

WE are glad to announce that about July 15th Professor John W. Adams, of the Veterinary Department of the University of Pennsylvania, will bring forth the projected work on the *First Principles of Shoeing*. It will cover in a measure the place of instructor in horse-shoeing, so far as this may be accomplished by a work of this kind. The book will contain some one hundred and forty pages of reading-matter, and one hundred and forty-four illustrations. It will be placed on the market at a popular price.

WHEN the different States shall take up in their Legislatures the need of better sanitary measures in railroad live-stock transportation, compelling railroads within their borders to regularly and thoroughly disinfect their cars, there will be fewer losses to shippers and breeders, whose cup of grievances has been full to overflowing the past two years.

SOME 27,000 horses were inspected in Montana during the past two months, most of those shipped from the State being sent to Dakota. Every State has an equal amount of veterinary service, if the proper organization of its sanitary service was inaugurated.

BOOK REVIEWS.

REPORT ON BOVINE TUBERCULOSIS. By DR. M. H. REYNOLDS. Bulletin 51, Agricultural Experiment Station, University of Minnesota, December, 1896.

A GREAT many reports have recently been issued by Experiment Stations of this country upon the subject of bovine tuberculosis. As the experiment stations are organized, conducted for and to a large extent by the agriculturists of the country, and directly controlled by agricultural interests, it is fair to assume that there is a widespread demand for information in regard to tuberculosis, or these reports would not appear in such numbers. Most of the bulletins on this subject review with more or less thoroughness our existing knowledge in regard to tuberculosis and compile summaries and rearrange from other reports and papers in such a manner as to furnish in readily assimilable form the information that it is thought the farmers are most in need of. Therefore, there is a vast amount of repetition in them, and if one undertakes to read each bulletin on tuberculosis as it appears the task becomes exceedingly monotonous. The bulletin recently issued in Minnesota presents much of this old subject in a new way; it makes new applications of existing knowledge, and brings out some new facts; therefore Dr. Reynolds's work is very refreshing. The publication covers about seventy pages, and is illustrated with eight full-page half-tone plates.

It begins with a summary of its contents in which the principal points of the subject-matter are expressed in a few short, pithy sentences or paragraphs. The whole subject is treated in a conservative, scientific spirit that tends to inspire confidence, and sweeping statements in reference to undemonstrated points seem to be studiously avoided. The following sentence strikes a keynote, it will bear frequent repetition, and covers points in regard to which there has been much misapprehension: "Sanitarians are not quarrelling with butter, milk, or meat—not with dairymen nor breeders, but wholly with tuberculosis. We cannot well do without milk or butter, nor do we wish to do without meat; but let us have them pure and wholesome. No man can do a better thing for his neighbor than to show him truth. There is safety when we see, and danger when we do not."

The absurd charges that have been made against the use of tuberculin from time to time are effectually disposed of. The matter of meat-, milk-, and dairy-inspection is considered, and the laws of Minnesota, together with the ordinances and regulations operating in Minneapolis, and the court decisions bearing on these statutes, are given in full. Reference is made to the laws regarding tuberculosis of cattle in operation in Switzerland, Denmark, and France, and then follows a report upon the effect of tuberculin upon non-tuberculous cows and upon fattening steers, in which it is shown that tuberculin does not injure a healthy animal, so that previous results of this kind receive new confirmation.

The resolutions on tuberculosis adopted by the United States Veterinary Medical Association at its meetings in 1895 and in 1896 are given in full. A significant table shows the percentage of tuberculosis that has been found in herds of different breeds kept under different conditions. It tends to show that there is a distinct relation between unsanitary conditions and the prevalence of tuberculosis. Another table shows the location of tuberculous lesions in a number of animals examined post-mortem, and still another table gives the temperature reactions. Statistics of this character are all too few, and every contribution of this sort is of great value to the student of tuberculosis. It is only by the accumulation and careful digestion of large masses of material of this kind that reliable conclusions can be drawn. Some work is done upon the lines first laid down by Professor Bang, and it is demonstrated again that healthy calves can be raised from tuberculous cows, provided certain precautions are observed and that under some circumstances it is profitable to retain reacting animals; but the point is made very clearly that it is a costly experiment to keep animals, tuberculous in any degree, in a herd that is otherwise healthy, and where such animals are retained they must be isolated carefully. A conservative view is taken as to what can best be done to suppress tuberculosis, and general sanitary measures are recommended, most of which is summed up in the following paragraph: "Sanitarians should insist that Nature's laws are unchangeable, and that the great laws of physiology and heredity will never be varied so that breeders may acquire fancy muzzles for cattle or belts of color around the body. The man who is founding a herd should be very sure that he is not founding a tuberculous herd. He should try to breed cattle, not tuberculosis. The great value of the tuberculin-test to breeders lies in the fact that it enables them to know whether their cattle are free from tuberculosis, and it enables them to free their herds and put them on sound and healthy bases in case they are diseased."

Some attention is given to the curative value of tuberculin, and it is found that of eleven animals treated two made evident recoveries and two showed recent repair in diseased tissues.

Of course, the *Bulletin* is prepared principally for farmers, and technical readers are asked to remember that it has been necessary to employ throughout such language as would make it intelligible for stockmen. There are a few statements, however, that all veterinarians will not be quite willing to accept without further data; for instance, it is stated that, "there is no ground for argument concerning the use of meat and milk from tuberculous cattle." Is it not true that this statement requires some modification? While there are very few who care to use the milk of any cow that has responded to the tuberculin-test, unless it were heated to a point that would insure the destruction of the tubercle bacillus, there are many who have given careful attention to this subject who do not feel that there is any risk in using the flesh of animals in certain stages of disease, and in the foreign countries in which meat-inspection is most developed such flesh is constantly placed upon the market without evil results so far as can be ascertained. It is also stated that the place to examine a sample of meat or milk for soundness in respect to tuberculosis is the stable, and the only method at present the tuberculin-test. Meat-inspectors who are accustomed to make their examinations upon the floor of the slaughter-house will hardly agree with the first part of this statement, but still, we must remember that where there is an ineffectual attempt at inspection and a system that is incomplete, it is better to err by giving the consumer the benefit of the doubt than by allowing products to go on to the market that might produce disease, and fine distinctions can only be made where methods of inspection are well developed and where there is an inspecting corps large enough to enforce them. The method of making the tuberculin-test also seems a little involved and to include some unnecessary labor and time, but it is careful and accurate. The report as a whole is most excellent. It is, perhaps, the best *Bulletin* on this subject that any experiment station has published, and is calculated to be of much benefit to the live-stock interests of Minnesota.

LEONARD PEARSON.

COMMENCEMENT EXERCISES.

VETERINARY DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

THE closing exercises of this department were held in conjunction with the several other departments on Wednesday, June 9th, at 11 A.M. The members of the graduating class marched with the other graduates from the college to the Academy of Music. The procession, headed by the City Troop and followed by the municipal band, led off with the Governor of the State, Mayor of the city, faculties of the various departments, and graduates. Of the class of nineteen, some seventeen attained the necessary average to win their diplomas. The degree of V.M.D. was conferred upon them by Provost Harrison, after an appropriate prayer by the Most Reverend Archbishop Ryan. A very excellent and timely address on the duties of citizens was delivered by Hon. Wayne MacVeagh, ex-Ambassador to Italy, to those who received degrees from this honored institution. The exercises were interspersed with excellent music.

List of graduates: Raymond Barber, James Beatty, Henry Bower, Jose Traugot Hernsheim, Louis Amos Klein, Abraham Lincoln Lehman, Augustus Nathaniel Lushington, Henry Marshall, John Wood Montague, Edward William O'Connor, Edward Martin Ranck, William George Shaw, William Henry Smith, Jr., William J. Storm, Archibald Hay Wallace, Ernest Aarons White, Lloyd Zaner.

The first prize of one hundred dollars, known as the J. B. Lippincott prize, was awarded Dr. Louis A. Klein, of the graduating class. A prize of an écraseur, given to the member of the junior class passing the best examination, was won by Mr. Guy E. Chesley. A group-picture of the graduating class was prepared for the college and the several members of the class.

On the evening of June 8th the Alumni Association held their annual reunion at the Aldine Hotel, where, grouped around a number of small tables, were to be noted, among others, Professors Adams and Harger, Drs. H. P. Turner, Schrieber, C. J. Marshall, Christman, Houldsworth, McCray, Senseman, John Pearson, and of the '97 graduates Messrs. Barber, Beatty, Herusheim, Lushington, Henry Marshall, Shaw, Montague, Wallace, and Ranck. President Adams, in an informal manner, called the meeting to order, and Dr. Clarence J. Marshall reported for the Committee of Arrangements. The choice of officers for the ensuing year resulted in the selection of Dr. A. F. Schrieber, President, who enlivened the occasion with several songs and stories; Vice-President, Dr. C. J. Marshall; and Secretary-Treasurer, Dr. Wm. G. Shaw. After thanking the officers and instructors, the gathering dispersed at midnight.

The veterinary medical association of the students met at 4 P.M. on Wednesday, June 9th, in the college hall; about fifteen members were present. The librarian announced the receipt of additional books. A sum of money was appropriated to complete the certificates of membership and their delivery to the fourteen members who had complied with the requirements, and to whom they were awarded. The officers for the year were: Honorary President, Rush Shippen Huidekoper, New York; Honorary Secretary, Leonard Pearson, Philadelphia; President, L. A. Klein; Vice-President, E. M. Ranck; Secretary, John E. Spindler, Class '96; Treasurer, James Beatty; Executive Committee, E. M. Ranck and Wm. G. Shaw, Class '97; Ernest Spaeth and B. Kirby, Class of '98; C. F. Keiter, Class of '99; Librarian, Stephen Blunt, Class '98.

A class-meeting of the graduates of 1897 was held on commencement day, where, after receiving reports from the several class committees, the officers, consisting of President, Wm. G. Shaw; Vice-President, Lloyd Zaner; Secretary, Wm. H. Smith, Jr.; Treasurer, Edward O'Connor, with the other members of the class, chose as permanent Secretary, Dr. Henry Marshall, of Georgetown, Delaware, to whom all matters concerning the individual members of the class should be sent, and from whom information could be obtained pertaining to the Class of '97.

CORNELL UNIVERSITY: GRADUATES IN VETERINARY MEDICINE.

At the commencement at Cornell University, Ithaca, N. Y., June 17, 1897, the following candidates received the degree of

Doctor of Veterinary Medicine: Walter Emerson Howe, V.S., Delhi, N. Y.; Herman Reeve Ryder, V.S., Delhi, N.Y.; Walter Edward Weihe, Wilkesbarre, Pa. The graduation theses of these candidates, based mainly on original study and research, were: "Physiological Temperature of Some Domestic Animals," W. E. Howe; "Physiological Temperature of Some Domestic Animals," H. R. Ryder: "Contagious Pneumonia in the Horse," W. E. Weihe.

The Horace K. White prizes to the most meritorious student in veterinary science and to the second in rank were awarded to Walter Emerson Howe and Herman Reeve Ryder, who were adjudged equal in merit.

AMONG THE COLLEGES.

The Royal Veterinary College Council have declined recognition of the Melbourne Veterinary College.

English veterinarians are not exempt from jury duty. A special Parliamentary Act will be required, which is one of the future legislative moves planned.

Three English veterinarians have obtained the fellowship degree by examination. Of nearly 200 applicants but 119 were successful in obtaining the diplomas of membership in the Royal College of Veterinary Surgeons.

The University of Buffalo has just established a Chair of Comparative Pathology. Gradually, but surely, the world is growing to appreciate the true importance of comparative science.

Just on the eve of going to press we learn of another veterinary college entering the field of work, to be located at Kansas City, Missouri, to be known as the Western Veterinary College, and its moving spirit, Dr. Junius H. Wattles, M.D., D.V.S. It proposes to have as complete a course scientifically as any college in America and to comply with all the requirements of the United States Veterinary Medical Association. The degree of (D.V.S.) Doctor of Veterinary Science is to be conferred. Six months' sessions to be maintained. In the absence of other information we are wholly at a loss to comprehend the need of two schools in that city or in that section. The Kansas City Veterinary College, organized by Dr. Wattles, was relinquished, we thought, because of failing health and a sojourn southward being necessary. Subsequently the selling of the Doctor's practice was recorded, and later on the announcement of his entrance upon human medicine as a study for future work. Surely there cannot be a demand so soon for an additional school in that territory, in view of the light classes at the Western veterinary colleges last year, and we hope ere another issue to learn more of the situation. In the East we are hopeful for the amalgamation of some of our schools in order that stronger teaching institutions may be developed, and Western movements have been noted looking to the same wise end.

BOARDS OF EXAMINERS.

EXAMINATION FOR CITY VETERINARIAN, PHILADELPHIA, JUNE, 1897.

The questions are arranged so that they can be answered in a few lines. Do not go into great detail, but confine your replies to explicit statements and principles. Not more than one page should be devoted to a single question with its subdivisions.

1. *a.* Enumerate the principal symptoms of glanders, and three points of difference between glanders and colt distemper. *b.* What is the best treatment for glanders?

2. *a.* What are the symptoms of influenza? *b.* What are the complications of influenza? *c.* How should an uncomplicated case of influenza be treated?

3. *a.* What are the causes of pneumonia? *b.* What are the usual causes of death in pneumonia? *c.* Write one prescription suitable for a horse with pneumonia.

4. *a.* How may heat-stroke be recognized? *b.* If a horse with heat-stroke is down in the street, what should be done for him?

5. *a.* What is colic? *b.* How does colic cause death? *c.* Describe a case of colic that you have treated successfully, and your treatment for it.

6. *a.* What are the symptoms of founder? *b.* What is the treatment for founder in its earliest stages?

7. *a.* How should a horse with a corn be shod? *b.* How should a horse with sprained flexor-tendons be shod?

8. *a.* What should be done for a broken knee in which the joint is not opened? *b.* How should lacerated wounds be treated? *c.* How should a calk-wound be treated?

9. *a.* State the average normal temperature, pulse-rate, and respiration of a horse at rest. *b.* What should an examination for soundness include?

10. *a.* What are the principal defects of conformation to be avoided in a saddle-horse for police-service? *b.* Describe the type and conformation of a horse best fitted for service in a fire-engine team.

PENNSYLVANIA STATE BOARD OF VETERINARY MEDICAL EXAMINERS.

The annual meeting and examinations by the Board were held at City Hall, Philadelphia, on June 21st and 22d, at 10 A.M. each day. The entire Board were present to conduct the examinations. Of the seventeen candidates presenting themselves for examination, four of these had failed at prior examinations; five of this number were graduates of the Ontario Veterinary College, and twelve represented the Veterinary Department of the University of Pennsylvania. Of this number sixteen passed and one failed. The following graduates of the Veterinary Department of the University of Pennsylvania obtained the license of the Board—Drs. Raymond Barber, Henry Bower, James Beatty, Edward O'Conner, Louis A. Klein, Augustus N. Lushington, John M. Montague, Edward M. Ranck, William G. Shaw, William J. Storm, William H. Smith, Jr., and Lloyd Zaner. Of the Ontario Veterinary College, Drs. J. C. Kingan, Robert W. McKibben, J. O. Reed, and Roy E. Jackson. With few exceptions, excellent marks were obtained. Reports of numerous cases now being prosecuted were brought before the Board and the action of the officers indorsed. Arrests of others were ordered and vigorous measures instituted. The re-election of Dr. W. Horace Hoskins as President, and Dr. S. J. J. Harger as Secretary followed. The Prothonotary of Lawrence County, who had illegally registered a graduate in September, 1895, had the same stricken off by order of the Court at the request of the Board. The members of the Board were entertained by the President at his home. The next examination by the Board will be held in December, 1897.

VIRGINIA STATE BOARD OF VETERINARY MEDICAL EXAMINERS.

The examinations were held at Richmond, Va., June 23 and 24, 1897. The examinations were conducted by the entire Board. Two candidates presented themselves for examination—namely, Dr. A.

N. Lushington, graduate of the Veterinary Department of the University of Pennsylvania, and Dr. William H. Boyln, of Washington, D. C., a graduate of Toronto Veterinary College and of the Veterinary Department of the Columbian University.

MARYLAND BOARD.

On June 29th, at Baltimore, the following veterinarians presented themselves for examination: Drs. J. S. Buckley, Mount Washington, graduate of the American Veterinary College; B. A. Brown, Cockeysville, graduate of Veterinary Department of Columbian University; Joseph N. Myers, Baltimore, graduate of Veterinary Department of Columbian University.

SOCIETY PROCEEDINGS.

ON TO NASHVILLE.

THOSE members of the Association or profession located in the eastern central States radiating at New York, Philadelphia, Baltimore, or Washington will find the way to Nashville prepared for them by the Baltimore & Ohio Railroad, and the following rates may be availed of and the journey made a pleasant outing and the jaunt added to by the following pleasing plans: A ten days' excursion ticket may be purchased in New York for $10, in Philadelphia for $6 to Washington, the national capital. Those from New York may leave that city on Wednesday, September 2d; those from Philadelphia on Tuesday morning, September 3d, at 8.15 o'clock, and remain in the city of Washington until Thursday night at 11.20 o'clock. A special twenty-day excursion ticket is sold from Washington to Nashville and return for $21.05, making the cost from New York $31.05, from Philadelphia $27.05. Leaving Washington at night, this train will reach Chattanooga at 7.40 P.M. the following day, where a stop-over until 11.35 P.M. is made, giving an opportunity for driving over the city for some four hours, arriving at Nashville the morning of the second day, September 6, 1897, at 6.40 o'clock. Monday may be spent at the exposition; Tuesday, Wednesday and Thursday at the Convention; Friday and Saturday at the exposition, leaving Nashville on Saturday evening and arriving home on Monday the 14th.

This trip is by way of Shenandoah, and affords a beautiful ride through that wonderfully interesting and picturesque country. A special season excursion-ticket may be purchased at Washington for $34.75, good until the close of the exposition. Sleepers are attached to these trains both going and coming.

A paper will be presented at Nashville by Dr. E. B. Ackerman, of Brooklyn, N. Y.; also one by Dr. Wm. Dougherty, of Baltimore, Md., whose practical contributions to the Association have earned for their author a very warm appreciation by the members.

"Our Milk-supply," by Dr. Chas. Ellis, of St. Louis, Mo., and a statistical paper upon the "Effects of Tuberculin Injections into Healthy Cattle," by Dr. T. D. Hinebauch, of North Dakota, associated with an important contribution by Dr. Leonard Pearson, of Pennsylvania, will well cover one of the foremost topics of the day.

Knocking at the doors of the Association for admission at Nashville will be found some of the strongest members of the profession over our land, and this meeting will prove a rich return for the grand work done at Buffalo.

Secretary Stewart never tires in his work, and we fear his lamp burns all night for the Association's interest. Secretaries are born, not developed, and our present officer is one of those naturally well-fitted for such a place. He will leave a record to be proud of.

Headquarters will be maintained at the Hotel Tulane. An assembly-room seating two hundred has been offered for our use by the hotel proprietors, with committee-rooms, etc., for the convenience of the delegates. This hotel is maintained on the European plan, rooms $1 per day and upward; regular meals 50 cents each. This hotel has already entertained most of the associations that have convened at Nashville. Hotel accommodations may be secured in advance by writing Dr. T. W. Scott, 537 Broad Street, Nashville, Tenn.

St. Louis will send a large delegation of her veterinarians to Nashville. From all over the South and Southwest signs of increasing interest in our coming meeting continue to enlarge. It is very much hoped for that more of the western ladies will visit Nashville, that they may meet many of those who are planning to attend from the eastern and central States. This proved one of the very brightest points of our Buffalo meeting, and added much to the pleasure of all who were present. There are some new ones further up North that should be seen at Nashville—even as far north as Minnesota.

Sections in "Sanitary Science," "Veterinary Education," and "Practice" are strongly urged for one day at our Nashville meeting. The Executive Committee and officers should take this matter up.

CHICAGO VETERINARY SOCIETY.

Meeting called to order by the President, June 10, 1897, the first order of business being a banquet, at which twenty-two members were present. After the banquet the minutes of the previous meeting were read and approved. Twenty-one letters were then read by the Secretary from veterinarians throughout the State, many of whom were assistant State veterinarians, and who wrote notifying the Society that they had resigned their office owing to the appointment by the Governor of an unqualified man to the office of State veterinarian. Moved by Dr. Robertson, seconded by Dr. E. L. Quitman, that the Secretary send to the *Breeders' Gazette* a synopsis of these minutes with the names of the assistant State veterinarians resigned, for publication, and that a copy of the paper be mailed to each veterinarian in the State; carried.

The next order of business was the reading of papers. Dr. Henderson was called on for his paper, "Meat- and Milk-inspection in Chicago, and the Efficiency of the Present Laymen Inspectors." The Doctor presented extracts from the present unenforced laws, and also stated the stringent laws now in force in Minneapolis. The article was a most excellent one, and complete in all its departments.

Dr. Robertson presented a paper relating to the law governing veterinary work in the police department. This also was an excellent statement of present facts.

Dr. P. Quitman was unable to make any report in regard to the connection of a veterinarian with the fire department. Quite a long debate was held by the members as to drafting a bill for passage by the city council to place veterinarians as assistants in the city health department. Moved by Dr. Fisk, seconded by Dr. Campbell, that the Legislative Committee call on the Corporation Council or elsewhere and ascertain what are the chances to create a veterinary department in connection with the health department; carried.

Moved and seconded to close discussion; carried. On application and examination by the Board of Censors, Dr. H. H. McEvers was admitted to membership.

The hour being midnight, it was moved and seconded to adjourn.

LAWRENCE CAMPBELL,
Secretary.

REPORT ON THE RELATIONS OF THE VETERINARY PROFESSION TO THE DEPARTMENT OF POLICE OF THE CITY OF CHICAGO.[1]

Chapter 51, Article I., paragraph 1477 of the Municipal Code provides for the appointment of veterinary surgeons, but makes no mention of their rank or dutes. The late Chief's report, December 31, 1896, provides for one veterinary surgeon and one assistant. So also does ex-Comptroller Wetherill's estimate for 1897: Said appointees to receive for the first position $1800, and for the second $1000 per annum. There were two assistants, but where the second was placed the report does not say. For the past two years the positions were filled by qualified men, graduates of recognized colleges. The present are unqualified.

There are about 235 horses in the department, 4 for each wagon or ambulance, 4 for telegraph wagon, 1 each for Mayor, Chief, Assistant Chief, Captains, and veterinarians.

There is a veterinary hospital for the care of sick and disabled animals, belonging to the department. The work of the police department is very hard on horses. They have to attend every fire, and this means only about 1 per cent. of their work.

The appointment of veterinarians for the department changes with the administration. Sometimes the Mayor names the candidates, and sometimes the Chief of Police. Although the code provides for the appointment of veterinary surgeons, there have been no veterinarians appointed, the "powers that be" evidently believing in the maxim "that a little knowledge is a dangerous thing in connection with the department of police." As far as we can learn, this is the only instance where the profession is entirely ignored in the care of horses belonging to large cities. However, the responsibility for this condition of affairs, we think, rests largely with ourselves. We have allowed a commercial aspect to govern our conduct;

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[1] Read at the banquet before the Chicago Veterinary Society, Chicago, June 10, 1897.

in fact, proclaimed to the public that we were conducting our affairs on business principles, and the public have accepted our proposition, and met us on the same terms, and if, in the competitive struggle, we have been crowded out we have no cause to complain.

The organization of this Association is the first step toward raising the profession above the level of a business. Surely, our training and relation to the public weal would entitle us to a higher plane than this, but we have to clear our pathway ourselves, and our present experience should be a valuable lesson and stimulus toward organization and work. We should not only jealously guard each other's professional reputation, but do our duty as citizens in municipal affairs, and in this way wield a united influence that cannot be ignored. Respectfully submitted,

JAMES ROBERTSON.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

THE regular meeting was held at its rooms in the Academy of Medicine Wednesday evening, June 2d. In the absence of the President and Vice-President, Dr. J. S. Cattanach officiated at the request of the Secretary. On roll-call the following members responded: Drs. Bretherton, C. C. Cattanach, J. S. Cattanach, Ellis, Farley, Loomes, Lamkin, MacKellar, Murphy, O'Shea, and Ryder.

Dr. O'Shea, Chairman of the Judiciary Committee, reported that, although the jury bill was defeated again this year, he was informed that it would be the first exemption bill that would be obtained in this State. The Doctor also stated that it was through the efforts of some of the members of this committee that Assembly Bill No. 25, to enable Charles McCormick, of the city and county of Albany, to practice veterinary medicine and surgery as a profession was defeated in the Senate, it having passed the Assembly despite the fact that it had been opposed by members of the profession throughout the State. Moved and seconded that the report be accepted; carried.

The remainder of the evening was given up to reports of cases by members, which became very interesting. Dr. C. C. Cattanach reported a case of lockjaw and Dr. Lamkin several cow cases, all of which were freely discussed. The subject of "castration, standing," which had been discussed at the May meeting with much interest, was revived and discussed at this meeting.

Moved and seconded that the meeting adjourn, to meet again in October; carried.

ROBERT W. ELLIS, D.V.S.,
Secretary.

ONEIDA COUNTY VETERINARY MEDICAL SOCIETY.

THE regular quarterly meeting was held at the residence of Dr. W. G. Hollingsworth, Utica, N. Y., at 2 P.M., May 4, 1897, Dr. Hollingsworth presiding in the absence of President Dr. Morrow. There were present Drs. Hollingsworth and Skerritt, Utica; Dr. Stebbins, West Winfield; Dr. Findlay, Camden; Dr. Moore, Trenton; Dr. Markham, Port Leyden; Dr. Jones, Poland; Dr. Pratt, Herkimer; Dr. Weightman, Waterville; Drs. Huff and Currie, Rome. The minutes of the last meeting were read and approved.

Dr. E. B. Ingalls, Mohawk, and Dr. G. C. DeWitt, Ilion, were admitted to membership by a unanimous vote.

The election of officers for the ensuing year resulted as follows: President, Dr. F. Morrow, Oneida; Vice-President, Dr. Wilson Huff, Rome; Secretary and Treasurer, Dr. J. M. Currie, Rome.

During the business session articles of incorporation were signed and afterward forwarded to Albany, to be filed with the Secretary of State; a copy was also filed with the Clerk of Oneida County.

The general topic for discussion was glanders, introduced by papers by Dr. H. D. Stebbins, West Winfield, and Dr. Wilson Huff, Rome. In the animated and interesting discussion which followed (in which all members present took part), the Secretary was instructed to correspond with the State Board of Health, recommending that the mallein-test for glanders be recognized as is the tuberculin-test for tuberculosis.

The essayists were tendered a vote of thanks for their valuable contributions. There being no further business, an adjournment was in order. Next meeting to be held August 3d, in Rome, N. Y.

After closing the members present were handsomely entertained at dinner by Dr. Hollingsworth.

J. M. CURRIE, V.S.,
Secretary.

SCHUYLKILL VALLEY VETERINARY MEDICAL ASSOCIATION.

THE annual meeting was held on Wednesday, June, 16, 1897, at the Hotel Woll, Pottsville, Pa. The meeting was called to order by Dr. Sallade at 11 A.M., who acted as temporary chairman, President Burkholder being in Chicago filling the duties of meat-inspector in the employ of the United States Government. Dr. Sallade, in order to make the new members acquainted with the Constitution and By-laws, read them first. To roll-call the following members responded: Bieber, McCarthy, Noack, Sallade, Schneider, Yingst. The minutes of previous meeting were read and approved. Under admission of new members, the names of Drs. Longacre, of Shenandoah, and Newhard, of Ashland, were presented by the Secretary and their applications handed to the Trustees for examination. After recess of a few minutes, these gentlemen were reported favorably, and, after report, duly elected to membership.

Dr. Newhard was also present, and was introduced to the members. Under deferred business, the questions what should be done with delinquents for non-payment of dues was disposed of in this way, that Hagenbush be expelled, and the names of Drs. Fridirici and Snyder were dropped conditionally from the list of membership. After this the Treasurer read his report, showing that the Society was indebted to members to the amount of $25.75, and due to the Society for dues and initiation fees $33.89.

The report was examined by the Trustees and approved. Under head of new business, communications were read and received, followed by the nomination and election of new officers: President, Dr. Otto Noack, Reading; Vice-President, Dr. Schneider, Ashland; Recording-Secretary, Dr. Bieber, Kutztown; Corresponding-Secretary, Dr. Sallade, Pottsville; Treasurer, Dr. McCarthy, Pottsville; Trustees, Drs. Brackbill, Reading; Yingst, Shenandoah; Newhard, Ashland. Dr. Yingst read his paper, "Pathological Shoeing," which was discussed and followed by the reports of cases, "Tetanus in a Cat," and "Bursitis Intertubercularis," by Dr. Noack;

"Tetanus in Mule, and its Treatment with Gelsemium," by Dr. Newhard; "Parturient Apoplexy," by Dr. Schneider.

Papers for next meeting will be read by Drs. Schneider and Newhard. Meeting adjourned at 4.30 P.M., and agreed to meet in Reading in September.

OTTO NOACK,
Corresponding Secretary.

THE VETERINARY MEDICAL SOCIETY OF THE STATE OF NEW JERSEY AND VICINITY.

THE regular monthly meeting was held at Dr. L. R. Sattler's hospital in Newark on Tuesday, June 8th. Called to order at 4 P.M., President Sattler in the chair. At the roll-call the following members responded: Drs. Sattler, Ogden, Ancker, Smith, Knott, and Buckley. The minutes of the previous meeting were read and approved. Reports of Secretary and Treasurer were read and adopted. It was moved and seconded that the next meeting be held at Dr. Ogden's residence in Orange, N. J.

Discussions and reports from practice were next in order. Dr. Ancker reported a case of tetanus with complete trismus; 12 grains of Gibier's antitetanine were given in six doses in forty-eight hours, with 50 grains of chloral hydrate in solution per rectum. The animal made a complete recovery.

In discussing laminitis, Dr. Ancker gave his treatment as follows: 8 decigrammes of pilocarpin in three doses in twenty-four hours, also salicylate soda, 60 grains in twenty-four hours. In three days the animal is generally able to move about. In discussing the treatment of worms in the horse Dr. Sattler recommended the following:

℞.—Pulv. arsenici alb.	1
Tart. stil.	20
Pulv. aloes	30
Pulv. althææ	30

M. Fiat pil. no. ij. S.—Give the two pills twelve hours apart.

Dr. Sattler promised to explain an interesting case of rheumatic endocarditis at the next meeting.

E. BUCKLEY,
Secretary.

EAST ORANGE, N. J.

PERSONAL.

Dr. N. S. Mayo, of Manhattan, Kas., still retains his connection with the Veterinary Department of the State Agricultural College.

Dr. D. McIntosh, of Champaign, Ill., has placed upon the market a book on the diseases of horses and cattle. It is intended, as the author says, for the layman, student, and young practitioner.

Dr. A. Smith, of Toronto, Can., is one of the creditors, to the extent of seven hundred dollars, of Charles Boyle, the turfman, who recently failed.

Editor Buckley, of the *Horseshoers' Journal*, has wrought remarkable changes in that publication, all in the best interests of the craft. The *Journal* is bright, fresh, and more readable than ever.

Veterinarian G. Howard Davison and bride will spend two months in Europe on their wedding tour.

Drs. Leonard Pearson, C. H. Magill, and Edward Kellner were the examining board for City Veterinarian of Philadelphia in June. In this examination experience and fitness counted equal to the results of the written practical scientific questions.

Dr. C. R. Jolly, of Atlanta, Ga., was a visitor to the JOURNAL office in June. Ten days were being spent among Northern cities and renewal of college ties.

Dr. H. W. Hawley, with a partner, conducts a large livery and sale stable at the Union Stock Yards, Chicago, Ill.

Drs. Wyatt Johnston and Paul Paquin were visitors to the Convention of the American Medical Association at Philadelphia in June.

Dr. Leonard Pearson was a welcomed visitor to the section on State Medicine of the American Medical Association at Philadelphia, having by vote been accorded the privilege of the floor in debate.

The list of applicants before the examining board of Philadelphia for the position of city veterinarian included Drs. Frank H. Nice, Walter L. Hart, acting city veterinarian; John Z. Tintsman, C. J. Marshall, W. H. Neff, J. Price Vasey, E. H. Moore, and Charles Bland.

Dr. George Coester, of Detroit, Mich., has succeeded, as State veterinarian, Dr. E. A. A. Grange, who has held this post for several years.

Dr. W. H. Dalrymple, of Baton Rouge, La., is among the editorial corps of the Southern Farmer Co., publishers of the *Southern Farmer*.

Dr. Ernest N. Hutchinson, of San Francisco, Cal., inspector under the Bureau of Animal Industry, has been detailed to Portland, Ore.

Dr. J. F. Reid, of Decatur, Ill., read recently an interesting paper on "Profitable Horse-breeding" before the Farmers' Institute in Decatur.

Veterinarian Wm. B. Werntz, of Philadelphia, has recently taken possession of a hotel property near the city, where he will devote his future labors as a landlord and public entertainer.

Dr. H. D. Hanson, of New York City, has been compelled to relinquish practice for a month and repair to the mountain regions of New York State for recuperation of his impaired health.

Prof. W. L. Williams, of Ithaca, N. Y., passed the examination of the New York State Board of Veterinary Medical Examiners in June. He thinks the examination questions in some branches are severe.

Dr. C. J. Sihler, who has been in charge of the government meat-inspection service at Kansas City for several years past, has been transferred to Tennessee and placed in charge of the government experiment station in Hickman county in that State, to eradicate hog-cholera and swine-plague.

Dr. S. E. Bennett, recently in charge of the United States meat-inspection at Milwaukee, succeeds Dr. Sihler at Kansas City.

Dr. Clarence Loveberry, of Columbus, Ohio, managing editor of the *Antiquarian*, has been appointed assistant-curator of the Ohio State Museum.

Dr. W. B. E. Miller, of Camden, N. J., has received an appointment under the Bureau of Animal Industry, and was ordered to New York City for duty on July 15th.

Veterinarians John T. Cunningham and L. Parker were the inspectors at the horse-show in June at Providence, R. I.

Dr. W. J. Waugh, of Jefferson Barracks, Mo., has been detailed to report at Fort Ethan Allen, Vt.

Dr. Bernard Gunther, of Brooklyn, was a visitor at Philadelphia, in June, attending the National Saengerfest as a member of the Arion Singing Society of Brooklyn. He also paid a visit to the JOURNAL office.

Dr. A. N. Lushington, graduate of the Veterinary Department of the University of Pennsylvania, a successful applicant for a license before the Pennsylvania State Board of Veterinary Medical Examiners, was an applicant also before the Virginia Board at Richmond, June 23d.

Dr. Wm. H. Harbaugh, of Richmond, Va., is reported in failing health.

Dr. W. S. Kooker, of Philadelphia, was seriously ill in June, but we are glad to report his convalescence.

Veterinarian Frank Allen, of Chicago, has been chosen a member of the Illinois Board of Horseshoers.

The many friends of Veterinarian S. D. Larzelere, of Jenkintown, Pa., will mingle their sincere sympathy with him in the great affliction that has come upon him in the loss of his wife.

Dr. J. McBirney has been placed in charge of the Bureau of Animal Industry experimental work in stamping out hog-cholera in Page county, Iowa.

Assistant State Veterinarians Joseph Hughes, J. F. Ryan, and A. H. Baker, of Chicago; A. S. Alexander, of Evanston; J. Stallman, of Pontiac; J. T. Reid, Decatur; H. G. Pyle, Springfield; R. C. Mylne, Aurora; and Geo. Ditewig, of East St. Louis, Ill., have resigned, owing to the selection by Governor Tanner of a non-graduate for veterinarian.

Veterinarians D. W. Patton, G. A. Johnson, and R. P. Steddon were the examiners of the horseshoers' students of anatomy and physiology at the Kansas City Veterinary College.

Dr. Thomas Fallon, of New York City, has been chosen second Vice-President of the Empire State organization of master-shoers.

Among the prominent veterinarians noted at the Philadelphia Horse Show were Drs. Alexander Glass, W. B. Montgomery, E. H. Magill, A. F. Schrieber, Leonard Pearson, and Charles M. Cullen, of Philadelphia; W. H. Ridge, Trevose; J. C. Bartholomew, of Berwyn; S. D. Larzelere, of Jenkintown; L. O. Lusson, of Ardmore, Pa.; F. H. Mackie, of Fairhill, Md.; and A. W. Clement, of Baltimore, Md.

Dr. H. D. Gill, of New York City, was one of the veterinarians at the recent horse show at Baltimore.

Dr. W. G. Benner, of Doylestown, Pa., had a very extended article upon tuberculosis in a recent issue of the *Daily Democrat.* Many of the ill-understood aims and purposes of the State Live-stock Sanitary Board were fully explained and commented upon.

Dr. Henry Vander Roest, of Newark N. J., is under arrest in that city, charged with manslaughter of Charles Furman, colored, whom he wounded with a pitchfork. Dr. Vander Roest claims to have been defending himself from an attack made on him by Furman owing to the non-payment of a small debt.

Dr. Wm. Herbert Lowe was re-elected to the office of City Veterinary Surgeon of Paterson, N. J.

Dr. John McBirney has been transferred from Chicago to Sioux City, Ia., and placed in charge of the government inspection at that point, succeeding Dr. A. B. Morse, who was transferred to Des Moines, Ia.

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SOME ASPECTS OF ASSOCIATION AIMS AND WORK.[1]

BY W. HORACE HOSKINS, D.V.S.,
PHILADELPHIA, PA.

MR. PRESIDENT, FELLOW-MEMBERS AND COLLEAGUES:

So often have I been heard upon some of the lines of thought that flow forth from Association privileges and blessings that it seems proper for me to offer you an apology for again craving your indulgence and attention as listeners for a few minutes to "Some Aspects of Association Aims and Work."

So much pleasure, advantage, and assistance have I ever found in my association privileges, and continually there seem to rise up aspects of greater value in association membership and fellowship, that I am led to wonder at times at the seeming indifference of some to the personal advantages of membership in these organizations, not to speak of their power for good in every community where they exist.

Never, perhaps, were they of so much importance to our welfare as at the present hour. Never was there need of such close unity of our members as now. Never before have conditions and changes so peculiar in our country's history culminated at a time when we were so ill-prepared to deal with them individually as at the present time. Never were the temptations so strong to gain personal advantage of one another, in the end of so little worth to the individual, and of such great danger to the general good. At no time in the history of our profession were such great opportunities for any body of men that ever lived so

**Nashville,
our Mecca for
1897.**

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[1] Read before the Keystone Veterinary Medical Association, Philadelphia, September, 1896.

promising of good results if united efforts, properly expended, for the common good of all be put forth. In times of prosperity the parasite upon the body politic seems only to do an insignificant amount of harm; in the days of adversity and trouble he multiplies, and the pathway of recovery from times of depression is long and trying and the results slow and unsatisfactory.

Tennessee the 16th State to enter this glorious Union.

We have watched the growth of great industries in our land and the multiplication of great industrial establishments with a pride and glory that seem to us now peculiar, and I feel that we have been vieing with one another in our admiration, forgetful of how far-reaching and dangerous these have been to our own welfare and prosperity. I shall cite simply for an instance one great establishment of our own city, a great mart of trade, toward which every channel of communication seems to run. Its influences have been felt (not for the general good) in every section of our great city and for a territory of one hundred and more miles from its central location. It has concentrated under its roof the business of fifty or more individual houses; it has robbed our community of the value of fifty or more individual men whose independence and wishes for the common good of all within our borders were ever outspoken in thought and heroic in action for every movement for the advancement of our general prosperity. We have vied with one another in carrying to this great mart of trade a goodly portion of our earnings, to the detriment of our neighbors and against public good for all. We have seen wiped out here the private horse-equipment establishments of fifty or more individual concerns. We have striven to outdo each other in securing the professional work of this large aggregation of horses controlled by one establishment, and we have noticed the respective professional bids of $1000, $625, and $250 for professional services and medicines to this single stable annually. We have seen the bid of $250 win, and as a result we have had a loss to the profession of not less than $1250 per annum, quite sufficient in itself to maintain a good, rising young member in our profession. But this has been only one side of the loss. The manufacturer of drugs and chemicals has suffered; the retailer and dispenser of medicines has suffered; the carriage-builder has met with a loss, for one carriage has supplanted what fifteen or twenty would have been engaged in, and the number of horses required among our members is lessened; the furnisher of food-products has suffered; the harness-makers' income reduced; and the horseshoer has a less amount of work. What seemed a blessing in disguise is an evil and a menace to the community, an injury to public good, and prejudicial to our welfare as a whole. Look around you, fellow-members, for the picture I have drawn may be seen in every large community, and they continue to multiply on every side.

Now, where does this become a factor in an association aspect? Our bond of unity would not contribute to the increase of these institutions were we more thoroughly organized, and when from time to time we would discuss the necessary side of our work as to rates of remuneration, for every advantage gained by such institutions or corporations contributes to their multiplication in other directions, and the safety and prosperity of a whole people depend wholly upon the relative propserity of all the people who make up a community. Therefore, the greater the number of patrons that contribute to your sustenance and support is your greater security, the higher welfare of your profession, and your stronger independence as a man and citizen among your people. A few supporters make you more subservient to the wishes of a smaller number of people, among whom you will always find some who are selfishly inclined and whose influence you do not sympathize with, and who would make you a carrier of burdens that are not always easy to bear. Your profession can only advance in its true ratio when the common prosperity of all is the highest. A few of your number rapidly obtaining wealth and material prosperity means that the greater number are lingering in the throes of uncertain employment. Association power, united in its aims, will sooner solve such a condition for us than the sum total of individual theories left to determine the best remedy.

Association unity has solved the question of higher education and brought the weaker schools to a lively sense of the needs of the hour, and your future colleagues in our profession will not be but half-equipped to fulfil its duties, as you and I have been; and when grave periods of depression that have come twice to us as a profession in the history of our country and to the equine industry (I refer to the advent of steam and the death of the stage-coach and canal tow-path, the advent of electricity and the death of the horse-car) there will not be so many of us stranded because our education did not extend beyond the ills of the equine race, when a whole country

Our first convention in the new South, at Nashville, Sept. 7th, 8th, and 9th.

suffers in every city, town, and hamlet for inspectors of animal food-products, and the insufficient number of men equipped for this work makes the agitation for its establishment over the land a comedy with a tragic side. Had associations fulfilled earlier one of their missions—to advance veterinary education at every educational post—there would be to-day greater prosperity for all, and the few schools that early sought to establish higher education would not have been handicapped by those who forgot quality in the zeal for quantity, but would have advanced still higher, and the great number of those in practice to-day would have been equipped to fill these pressing needs for our people, and their agitation for sanitary police more potent in results, more fruitful in returns than they have been. Association privileges must come now, freighted with the responsibility of being quick to recognize every step forward of every centre of learning in our land, and its strong arm of support extended to sustain them. We must gradually exact greater safeguards for our people from the standpoint of citizenship, in vouchsafing to them the character and learning of those who are to be intrusted with these positions of trust, and in whose hand and keeping are to be placed these evidences of material wealth and prosperity wrapped up in our livestock of this great country.

Nashville, the scene of important events in our Nation's history.

In every community we must take the initiative in leading every movement that comes within the domain of our work. We must direct the channels into which our labors shall flow, and to do this we must be united and first determine what is the best plan and what will bring the greatest good to the greatest number, and with a strong and united arm of strength lift our people up to the light of our own horizon, that they may see the good that is to flow from our plans and purposes. There is work for every member of our profession; there is something your fellow-colleague can do better than you, and by association fellowship you will best learn this, and be better able to direct with forceful results his efforts for the common good of all.

I see struggling over our State to-day in more than a score of cities and towns individual veterinarians fighting single-handed the battle for greater safeguards for their people in purer food-products. Some of them, I know, have never considered the value of association power and assistance; all of them to-day need it, and some of them are casting around, like fish out of water, for some support to lean up against, for some help to fall down upon them from somewhere—help and assistance that only come from association circles. This aspect of association work is broad and far-reaching, and I might go on and show you its multitude of ramifications, but I would tire you with details that I know are now filling your minds with food for thoughtful consideration, and which will come back to us in the future like bread thrown upon the waters, with a greater return than any I can picture now.

It was association power and its consideration in organized bodies of people banded together for the common good of all that has fastened the merit-system of appointment in our public service. It reached our own professional organizations, and its voice was not unheard by those charged with its needs in those positions of our public service requiring veterinarians; and it no doubt helped in some measure to strengthen and hasten the completion of the plans which now exist in our government veterinary service, where every member of our profession stands on equal footing and where promotion is made solely upon merit and ability. And no one rejoices more in this state of affairs to-day than the former appointing power—Secretary Morton—from whose pen I have had the words that it has enhanced the character of the service obtained by our government, and the system of work moves along in a thoroughly smooth and efficient manner.

The new South, the centre of the greatest advancement of our country at the present time.

It was the absence of strong association circles and fellowship that helped to perpetuate the infamous spoils-system so long. In a country where so intelligent a people live, and where once obliterated and the people have tasted of an honest and efficiently administered civil-service, they will never return again to the dangers and bondage of a system that was cruel and barbarous in the extreme. The absence of association fellowship and fraternal affiliation made it easy, and violated no pledge of good faith, no code of ethics, for John Smith to have removed William Brown, no matter the relative worth of each other, from the public service, but because there was a change in the head of government of our country, State, or city or that Smith had been more subservient to the political advancement of the appointing power, the good of the people, the unjust reflection and aspersion cast upon the profession of their adoption was of secondary consideration, and what ground was lost in the second sober thought of the great majority of the people in their respective communities, not measured until it was too late to stay its injurious influences, and for which the great body of us must struggle to recover. Thus, another aspect of association aims and purposes is mirrored before you; its ramifications and influences I leave for you to trace and better appreciate than I can conjecture them, for some of you have tasted of political appointments and felt the retributive blows and hardship of such places under the pernicious spoils-system, that can never win approval from association circles, or be a concession of ethical consideration when framing rules of honor for our welfare and general good, and for which only the punishment of loss of association privileges and the esteem of our colleagues stands as the dire sentence for its betrayal—a punishment so potent and forceful that I have witnessed it rob the manhood and self-respect of some members of our profession, that they have expressed the wish that they had never entered the calling, some of whom have dropped by the wayside, and are only lingering on for a time at the outposts of the profession, without the fellowship of their colleagues, the esteem of their community, and who are strangers to every advance of their profession, and factors only for good in a feeble way in any direction.

In Tennessee are the most noted stock-raising farms in America.

These are some of the results of lack of association fellowship and unity, and they will become no less potent in their unhappy side as the advance of our calling moves on with greater strides, for I see in the future the great body of our people seeking foremost channels through which they can help the general advancement of all.

Permit me to add one more purpose of association unity and I will close my subject. It is that of settling all our differences of opinion on questions of public import within our organization. It is to present more forcibly the value of asscoiation unity, where our final opinion on all subjects of importance to us as a profession is the sum total of the best thoughts and plans of all combined; it is the burnished and refined, the polished and brightened single reflection of associated rays, that have shot forth from a multitude of sources, and when so presented has added strength and force that win for it support and approval and make it potent for good. I can but add to this point an illustration more forceful than words, and of which some of my hearers may recognize the source of my pen picture. The scene of action—a great commonwealth honored by strong men in our calling. A great sanitary police project is agitated, the people are aroused, the profession are at a diversity of opinion. The magnitude of the undertaking is seemingly understood but by few; the need and value of its accomplishment acknowledged by all. The plans to be pursued must of necessity be original; but there are those of our number who have studied it out. The powers of the State, while startled at the undertaking, are reliant upon the projectors, and their confidence is displayed by their concession of the power to carry the project into execution. The profession of the State are not united; there are many men of many minds; they cannot compass the great good for all if there be not unity of thought and action. They do not grasp the great opportunity; they assemble in partial strength; they discuss the movement not to arrive at a single plan of action, but to differ for reasons that seemed to be not wholly unselfish in character. There must be leaders, and those best equipped seem to vary in the opinion of those assembled; the sessions are stormy, the division of opinion grows stronger; the agitation of methods and plans are carried on beyond the confines of professional circles; the layman enters the field and adds to the difficulties, "for fools rush in where angels fear to tread;" the association's influence is disrupted, the value of its opinion lost; the worth of its existence greatly shattered, friendships and fellowships severed, and chaos prevails. The laymen propose to settle the scientific aspect of the situation; the professional men the business aspect, and the whole commonwealth is agitated as never before. The value of the work is discounted; the methods to be pursued are thrown back for laymen to decide; the whole civilized world is threatened with heavy loss, though an able community, an advanced people have elected to undertake a work of world-wide magnitude and of importance to every man, woman, and child of the civilized and uncivilized world. But the work was must go on; leaders have arisen at every need and demand of the world's progress, and, though tried and persecuted, they push on, under difficulties and trials little appreciated by those not wholly familiar with the great battle. The work is impeded, the plans are changed; but, with determination, every foot of the ground is fought over, and day by day is revealed the but faintly estimated value of the work done and the work needful for all.

The centennial of her admission to the roll of States.

How much has been lost can never be estimated or realized, and how serious a responsibility will rest upon those who would impede the progress, time only will tell. For my purpose, suffice it to say that the work of a valued association has been nearly lost to us all for more than a year; its ulterior influences have been felt in our national organization, and it will require years of unremitting labor to regain that which is lost, and which loss and burden should never have been made or imposed upon a profession whose burdens are many and whose yoke is not easy to bear.

Such, then, is another aspect of association aims and purposes; and its further thought and consideration I leave with you.

COLIC.[1]

By E. P. Schaffter, V.S.,
MOUNT EATON, OHIO.

This term is applied generally to a variety of conditions giving rise to abdominal pain. In the horse there are no more common or more frequently fatal affections than the diseases known as spasmodic and flatulent colic, indigestion, constipation, volvulus, intussusception, and various other intestinal derangements. Among these I will briefly consider the first two, namely, spasmodic and flatulent colic.

The seat of the perfect reproduction of the ancient Parthenon, at Nashville.

Spasmodic colic is a spasmodic contraction of the muscular fibres of the intestines, not generally having a tendency to terminate in enteritis. It is usually due to some primary cause which interferes with the peristaltic movements of the bowels, and is sometimes brought on by a combination of circumstances. The most common causes are overfeeding and irregular feeding. In regard to overfeeding, as is usually the case with horses that are being prepared for Eastern market, they are crammed with feed, as they are generally cared for in a way that their appetite assumes a voracious nature. This condition is taken advantage of to prepare them for market speedily. Want of exercise and the above-mentioned cause not infrequently produce a feverish and arrested secretive condition of intestines, causing the bowels to become overloaded, hence the pain caused by nature's endeavor to remove this abnormality. Drinking excessively of cold water when the animal is warm is also quite a frequent cause of colic. I will not consider those causes having their origin in derangements of the accessory organs of digestion, as the space in my paper will not permit of a detailed consideration of all the direct causes of this affection.

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[1] Read before the February meeting of the Kansas State Veterinary Medical Association.

Symptoms. A careful study of the symptoms of this disease should be made in order to arrive at a correct diagnosis, as the symptoms are nearly identical in other conditions requiring different treatment.

Spasmodic colic always begins suddenly. If feeding, the animal stops suddenly, paws, shifts about, and crouches. He looks around at his flanks, sometimes attempts to bite himself; he will lie down and turn on his belly or roll on his back, and often, as the paroxysm is abating, he will lie outstretched on his side, as if to rest himself. He then rises, shakes himself, and appears well. He will then seek food. The subsidence of these symptoms is of but short duration, and they often reappear in an aggravated form. Sometimes the attacks diminish in violence, each subsequent attack being less until the animal recovers; but under other circumstances the pain becomes continuous, the pulse becomes quick and hard, the breathing accelerated, the eyes show an expression of anguish, becoming prominent and staring, and there is usually noticed a sympathetic derangement of the brain. When the disease has progressed to this stage it usually terminates fatally. There will be noticed a coldness of extremities, cold sweats bedewing the body, and twitching of the muscles of the body. In diagnosticating this disease you should always bear in mind the history of the disease, nature of the horse, the sudden violent and intermittent attacks, the normal temperature, and the normal pulse at intervals of ease. With the above caution you cannot mistake it for other forms of bowel-trouble.

Tennessee has recently established a State veterinary organization.

Treatment. In no disease so much as in spasmodic colic are the powers of nature and scope of medicine so clearly exemplified; hence the necessity of the practitioner being hasty to reach his patients for fear of arriving too late. Regardless of the different modes of treatment the patient has been subjected to by neighbors —all of whom have a prescription to which they attribute great curative powers, but which generally are not sufficiently injurious to prove fatal, and this stubborn resistance of nature is in itself not always sufficient to effect a favorable termination, I administer two ounces of aloetic mass, followed by one ounce of chloral hydrate dissolved in one pint of water, and use the injection pump freely. This mode of treatment is very effective in this disease.

FLATULENT COLIC is due to a distention of the large intestine with gases, caused by indigestible food, diseased food, cribbing, etc. It is closely allied in many ways to spasmodic colic; in fact, often accompanied by it. The symptoms are usually not so suddenly developed; the abdomen becomes distended and the breathing more labored. The treatment is the same, except that alkalies should be given to neutralize the gases. This disease requires more prompt and persistent treatment than spasmodic colic, and is somewhat more fatal, owing to the interference with the function of some of the internal organs by the abnormal pressure. When the bowels become so distended as to greatly distress the animal do not hesitate to use the trocar and canula in the most distended portion, which usually affords immediate relief. Repeat this until the animal is permanently relieved.

You should enter the open doors and warmly greet this infant organization.

METHYL-VIOLET, OR PYOKTANIN; WITH REPORTS OF OTHER VETERINARIANS.[1]

BY W. HORACE HOSKINS, D.V.S.,
PHILADELPHIA.

METHYL-VIOLET, or pyoktanin, according to Liebreich, is a mixture of aniline compounds. Apyorin, introduced by Pettitas as an antiseptic similar to pyoktanin, is a yellow crystalline powder slightly soluble in hot and cold water, and soluble in alcohol.

Aniline was said by Mohler and Frereichs to be devoid of poisonous action, but the experiments of Dr. Letheby and the numerous cases of poisoning which have occurred from the use of aniline in the arts demonstrate that it is a powerful toxic agent. The symptoms produced by inhalation or ingestion are great prostration, heaviness in the head, giddiness, vomiting, violent neuralgic pains, and, if the dose has been large enough, cyanosis, coma, with dilatation of the pupils, excessive perspiration, loss of reflexes and of voluntary movement, hurried, weak pulse, rapid or irregular respiration, hæmoglobinuria, a peculiar discoloration of the skin, and, if the patient survive sufficiently long, jaundice with great increase in the biliary pigment of the urine. At an autopsy report by Muller (A. J. P., 1887), in a woman killed by the swallowing of about a fluidounce (29 c.c.) of aniline, the blood was chocolate-brown and gave the spectrum of methæmoglobin, the urine was free from sugar, albumin or blood, but contained paraheidophenol, and its distillations gave aniline reactions. Its destructive power on red blood-corpuscles has been so marked that they have been known to fall from 5,000,000 per c.c. to 2,700,000 on the seventh and 1,400,000 on the eleventh day.

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[1] Read before the Pennsylvania State Veterinary Medical Association.

The violent effects of the aniline dyes locally, which have been noticed by some, have probably been due to the presence of arsenic, which is used in the production of aniline and may remain as a contamination. Methyl-blue hypodermatically given was found fatal in doses of three decigrammes per kilo in weight, with symptoms of prostration, loss of response to external irritants, anuria, and chocolate discoloration of the blood.

Janicke, experimenting with the pathognomonic organisms of pus of anthrax, of cholera, of typhus, and of pneumonia, found the activity of pyoktanin even greater than asserted by Stilling.

Those bacteria most readily stained by the methly-violet were most readily influenced by it. The practical value in surgery of pyoktanin has been asserted by Stilling, by Sée and Moran, by Patterson, and by numerous other surgeons, and there would seem to be no doubt of the value of the remedy.

Pyoktanin is the discovery of Prof. J. Stilling, of Strassburg University, and in its introduction to the scientific public he claimed for it a true but harmless therapeutical disinfectant, using this latter term in the sense of a product that not only arrests or suspends the life-phenomena of micro-organisms, but destroys their vitality completely, beyond the possibility of resuscitation. Its safe yet powerful influence on animal tissues and fluids in the living body led him to claim for this discovery

Visit Nashville in September and mingle with your colleagues.

1. That it is devoid of any injurious effect on the human or animal economy or organism.

2. Certainly and utterly destructive of all bacteria or other micro-organisms absorbing it.

3. Rapidly and completely diffusible in and permeating both healthy and diseased animal tissue or fluids, and readily penetrating the enveloping membranes and internal substance of all bacterial colonies harbored by them.

Its non-poisonous character was regarded as an essential and safe quality for proper disinfection of all purulent, gangrenous, septic, syphilitic, tubercular, or other micro-parasitic morbid processes.

Of the other strong antiseptics or disinfectants, their dangerous toxic character when used of certain strengths was well known; while in mild dilution they were not of sufficient power to be reliable or efficacious in the destruction of micro-organisms. Others were prone to form insoluble compounds with portions of organic matter, thus serving as protecting coverings over strata of bacterial colonies which were somewhat removed from the surface and thorough sterilization of the inner layers of a diseased part not attained.

Its use was strongly urged in its first introduction in the treatment of corneal ulcers and suppurative conditions of the eye and its membranes—burns, purulent sores, and lacerations of various kinds.

In epizootic eczema of horses and cattle it was found to be a rapid agent in their control, and moist eczemas were quickly amenable to its action.

Its value over corrosive sublimate, carbolic acid, iodoform, nitrate of silver, creosote, and chlorides, iodides, mercuric and metallic compounds, and phenols was highly extolled, but much of this has not been realized, because other remedies equally less dangerous than many of those quoted, over which pyoktanin was claimed to excel, have latterly been brought forth and have supplanted it in many directions. One very great objection to its use in powder form was the peculiar discoloration it produced, and which left on the hands of physician and patient such annoying and objectionable evidences of its application.

Go down to Nashville and meet new faces.

This coloring of blue or yellow, representing the two principal kinds used, was of some value in external applications as a guide to the operator's eye and hand, as to surface and depth covered or penetrated. The yellow is less objectionable than the blue, as regards coloring. Its use was advocated in pencil form, the yellow, the milder of the two, in the diseases of the eye, and the blue, the stronger, for ulcers, burns, or purulent wounds, the pencils to be dipped in water and the surfaces passed over until the parts take on the color of the pencil used. This plan was most useful in veterinary practice.

The pure pyoktanin powder to be strewn over purulent surfaces and then abandoned to spontaneous desquamation. A 2 per cent.

powder in moist eczemas or abrasions of the skin sprinkled over the parts. A $\frac{1}{10}$ per cent. powder in ophthalmic lesions. A 2 to 10 per cent. ointment in all conditions where this form would serve better than a powder. Solutions in water of the strength of 1 : 1000 to 1 : 100 as the antiseptic requirements indicate. These have been used for disinfecting purposes in rooms and of utensils used in connection with the sick, and in hospitals, prisons, and asylums. A $\frac{1}{10}$ per cent. dressing material has been on the market also—to be used in bandaging wounds or packing cavities.

Personally I have tried pyoktanin in a numler of cases; but I cannot say with any gratifying results, though it is equally true that in the cases where I used it every other remedy was equally unavailing. I used both the powder and pencil form, and gave it a very thorough trial in one case of summer sores or epitheliomatous condition of the skin. This mare had for the preceding two summers broke out in these never-healing patches, the prior season having been under my care, and the wounds did not heal properly until the cold weather. On the occurrence of the sores the third season I early resorted to the use of pyoktanin blue, in pencil form, and kept steadily at it until I was convinced that it was no better than the other remedies that had failed. On one large patch at the coronet I used it in powder form, and applied a pad of oakum with pressure-bandage, but this failed to give any better result than the pencil on the body, and finally when cold weather arrived they healed up, leaving rather unsightly patches over the body. This summer she did not break out for me, as I finally convinced the owner last winter of the wisdom of selling her, which he did.

You will meet there some of your college classmates, on Sept. 7th, 8th, and 9th.

I have used pyoktanin powder in fistulous withers, but not with any marked results that would lead me to favor its use over other remedies that have not the objectionable features of discoloring everything it touches and leaving its mark behind it, just as iodoform scents an entire stable or quarters where it is used.

Dr. H. D. Gill, of New York, has used it in purulent wounds and in punctured foot-wounds, and has had very good results with it.

Dr. Wilfred Lellman, of New York City, used it for several years very extensively in surgical practice for punctured or suppurating wounds, and commends it very highly in all such cases.

Dr. William H. Ridge reports a case of summer wound in a bay gelding. Location of sore on flank had been treated, and steadily became worse, until it spread to about three inches in diameter—very fetid. Pyoktanin in pencil form was used once daily without washing or any other application. In three days the wound was under control, and could not have healed more kindly. A second case of the same nature had been treated by the owner until it had spread to the size of a dollar. After ineffectually trying other remedies he began with pyoktanin, and it dried up in three days, and remained good for a week, when the owner thought he could handle it, but in two weeks it was as bad as ever.

Renew old acquaintances at Nashville, Sept. 7th, 8th, and 9th.

He reports its use in several cases of ordinary ulcers which healed nicely. Another case of wound on neck in front of withers, which began to have an offensive odor, had been treated with bluestone, white lotion, creolin, acetanilid, and boric acid, when a few applications of pyoktanin acted more favorably than any of the others. This animal was put to work before healing was complete.

Dr. A. T. Peters, of Nebraska, writes: "I am a great admirer of this remedy, as I have seen it used to a great extent in the Royal College of Stuttgart, and have used it very freely wherever I could. I have used it considerably in fistulous withers and in puncture of the coronet."

Dr. William Jakeman writes: "My first experience with it was in open-joints. In June, 1894, I was called up by telephone from a neighboring town forty miles distant. The gentleman informed me that his mare a week previously had run away and came in contact with a barbed-wire fence, laying her knee open two-thirds around. He had it sewed up and dressed by a local man, but, owing to the mare being a highly nervous animal, she acted badly and tore out the stitches. He could not get it to heal, and wanted to know if I advised him to shoot her. She was very well bred, and I recommended her being put on the train in my care. I have seen many cases of open joint, but never anything like that. The carpal bones could easily be felt. I had her placed in a sling with a nice-fitting splint made of sole leather to extend from foot to elbow and carefully secured with bandages, using compresses of tow under and above the knee to crowd the wound together. I kept the parts clean, and all the usual dressings were applied, but it did not do as well as I wished, and seeing pyoktanin spoken of in one of the journals—thanks to them for many points—I decided to get some and try it. I commenced to use it in the proportion of one drachm in a pint of water. With its use the discharge of synovia grew less, and the wound contracted and healed rapidly. I have used it in several cases of open joints since with equal success. I sometimes use it in conjunction with oleum caryophyllin, which I find to work nicely. I now use it 1 : 8 with petrolatum, and find it one of the best ointments for general use. Last winter a gentleman was driving a four-horse team when a horse from a grocery team ran away, coming in contact with the leaders, the shaft entering the breast and passing under the scapula and glanced along to the seventh rib. This proved very troublesome to heal, but I used pyoktanin, when it healed rapidly."

THE FLOATING CARTILAGE IN JOINTS.

By W. J. Martin, V.S.,
KANKAKEE, ILL.

A few months ago I was called to an adjoining city professionally; while there I was requested by a gentleman to examine the hocks of his young stallion, two years of age. On manipulation of the left hock-joint a small, hard, nodular body could be felt on the internal aspect of the joint. The body was situated within the true joint—that is, behind the capsular ligament and synovial membrane, and was found to be floating free in the synovial fluid of the joint. The colt had never shown any symptoms of lameness, nor was the joint enlarged at any point. A diagnosis of a floating piece of cartilage within the joint, without any apparent structural changes in the articulation, was made out.

In a practice of nearly fifteen years, this is the first case of floating cartilage in a horse's joint that has come under my observation, although I have no doubt that they are more common than we are aware of, could we but detect their presence in joints. There is no doubt in my mind, that in the horse loose pieces of cartilage in joints are often the cause of many cases of obscure lameness, such as "cramp" of the hind limbs of young horses, in which cases the limbs are often most rigidly locked, admitting of neither tension, flexion, nor rotation. Loose pieces of cartilage may also be the cause of acute arthritis when, owing to the amount of swelling present in the joint, detection of the pieces

It will more firmly cement the fraternal feelings that bind us: North, South, East, West.

may be overlooked, or they may become fastened to some part of the joint by the resulting inflammation.

Floating cartilage in joints is quite common in man, and is often the cause of so serious a disorganization of joints as to render amputation necessary. The composition of these hard bodies found in the joints of many vary, some being composed of numerous layers of compressed fibrin, while others are made up of portions of ossifying cartilage, and in reality are true bone. The causes which give rise to the presence of these loose pieces of cartilage in joints are various, perhaps the chief one is that as the articular cartilage derives most of its growth and nourishment by imbibition from the network of fine bloodvessels that terminate near the shaft of long bones which go to make up an articulation, any redundance of their cartilage might be accounted for by a too rapid growth of the cartilage within the joint at a certain point, which becoming loosened from the parent bone, floats off in the synovial fluid in the joint. Again, the formation of these morbid growths in joints is due to other causes, any one of which acting separately may give rise to them.

You will honor our hard-working efficient Secretary.

In some cases clots of fibrin may become solidified together; the presence of this clotted fibrin may be due to inflammatory exudation taking place within the joint. In other cases, blood may become extravasated into a synovial hinge, and there, becoming organized, break off and fall into the joint-cavity; or it may remain attached by a pedicle, and thus hang pendulous in the joint until it becomes caught between the ends of the articulating bones forming the joint, thus giving rise to sudden and severe lameness. In other cases the cells of the villous portion of the synovial membrane, which contain a few cartilage cells, may become enlarged from acute or subacute arthritis, and drop into the cavity of the joint. Sometimes a piece of the articular cartilage, together with a small piece of the bone, may, after an injury, be forced into the joint, causing inflammation and severe lameness. In osteo-arthritis the edges of the articular cartilage become much thickened and calcified, and sometimes these break off and fall into the joint. The size of these bodies found in human joints may vary from the size of a millet-seed to that of a walnut, and as many as sixty of them have been removed from a single joint.

In the human patient the symptoms of loose pieces of cartilage when they become caught between the ends of the long bones of a joint are most characteristic, such as sudden and acute pain in the joint, often extension, flexion, or rotation is impossible and the patient will often fall to the ground if unsupported. The offending body may sometimes be seen producing a bulging outward of the skin covering the joint when situated superficial, or if deep-seated within the joint it may be felt as a hard nodular body, which will sometimes slip from one side of the joint to the other. There appears to me no good reason why a disease which causes so much pain and suffering in the human species might not also be the cause of many pathological evils in the equine species. I think that this is a subject that may well engage the attention of veterinary pathologists, to render clear to us some of the lesions due to floating cartilage in equine joints.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS,
PRINCETON, N. J.

INOCULATIONS AGAINST SWINE-ERYSIPELAS (ROTHLAUF).—The tables of statistics for the quarter-year, July–September, 1896, contain numerous notices in regard to preventive inoculation against swine-erysipelas which certainly deserve to become more widely known, because they give valuable contributions toward judging the worth of these inoculations. The deaths mentioned in the following lists were caused by erysipelas.

In the Königsberg district inoculation with Pasteur's lymph:

1. 36 swine inoculated. Five or six days later 17 died.
2. 22 swine inoculated. After two months 1 death.

You can visit famous homes of noted thoroughbreds. Go and see St. Blaise, at Nashville.

3. 85 swine inoculated. One death after the first inoculation. Eight weeks after the second inoculation 22 died.
4. 60 swine inoculated. Many of the same became stiff and crippled in the hind legs after inoculation. A certain number, not specified, died with all the symptoms of erysipelas.
5. 30 swine inoculated. Sixteen died three weeks after the second inoculation.

6. 8 swine died after the first inoculation, 12 after the second, besides 6 inoculated swine which had been purchased elsewhere.

7. All 50 inoculated swine remained healthy. One hog which had been bought died on the day after purchase.

8. All the swine on the farm inoculated. Three months later 14 hogs sick with erysipelas had to be killed.

In the district of Gumbrunen: On one farm 13 hogs which had been inoculated with Pasteur's lymph in April died between July and September. In the Dunzig district, in two places, no preventive effect could be noticed after inoculation with Pasteur's lymph. In several places in the Dunzig district herds of swine were inoculated according to the process of Lorenz. No record occurs of an outbreak of erysipelas in these herds. In the district of Bromberg: In a herd of swine inoculated with porkosan, 10 died. In the district of Tundeburg: 54 hogs inoculated with porkosan died at one place. At two places in Merseburg, hogs died which, two weeks before, had been inoculated with Pasteur's lymph. At two places in the district of Stade several swine died after being inoculated with Pasteur's lymph. In Kussel 2 swine inoculated with porkosan died of erysipelas. In several communities near Dusseldorf no result was obtained with Pasteur's lymph. In one place the half of 20 inoculated swine are said to have died of erysipelas caused by the lymph. The statistics besides report no herds which showed immunity from disease after preventive inoculation.

In Tennessee you can scan battlefields that have been the scenes of stirring events in the world's history.

The facts cited here are well calculated to raise just doubt whether immunity against erysipelas in swine is really to be obtained by the different methods of preventive inoculation. According to the above statistics, Lorenz's process seems to have the best prospect of result.—MÜLLER in *Archiv fur Thierheilkunde*, Heft 1, 1897.

SEXUAL COMMUNICATION BETWEEN A DOG AND A HEN.—Cadiot, in the *Recueil de méd Vét*, reports the case of a dog that was accustomed to play with chickens. He gradually became accustomed to seize one of the hens and to carry out the act of coition. At first the hen resisted, but soon tried to provoke the act of coition, squatting before the dog and announcing its desire by a peculiar cackle, until coition followed. The hen was killed. —*Thierärzt. Centralblatt*, November 15, 1896.

A NEW STUD FARM IN HUNGARY.—The Imperial War Ministry has leased the estate Lábod, in Hungary, for twenty-five years. The estate embraces about eight thousand acres, and the price paid is 25,000 florins per year. The government will establish a stud farm there about October 1st.—*Their. Centralblatt*, November 15, 1896.

DIAGNOSIS AND COURSE OF MOON-BLINDNESS IN ARMY HORSES.—Dr. Nowotny, in the *Thierärztliche Centralblatt*, November 15, 1896, takes exception to the statement of Dr. Kirnbauer, in Arad, that the chief responsibility for the frequency of this disease falls upon the veterinarians who have not examined the eyes of all the recruiting horses with the ophthalmoscope, or do not understand how to use the instrument. He feels it his duty to communicate a few observations made in another land under other circumstances, so that the natural conclusion to Kirnbauer's publication may not be too hastily generalized.

The Fifth Dragoon Regiment, stationed at four places in Styria, gets the largest part of its recruiting horses from Hungary, and since the disease mentioned occurs less frequently in these horses some influence of the climate and altitude of the land upon the animals must be admitted.

According to the statistics of 1894 there were five horses (5 per cent.) in 1895, three horses (3 per cent.) affected with internal periodic inflammation of the eyes. In the two years preceding the number of horses that became moon-blind certainly did not exceed 10 per cent. annually. As will appear later, it cannot be asserted that any special service is to be ascribed to the examining veterinarian. He has examined with the ophthalmoscope all the horses belonging to the two squadrons of dragoons stationed at Graz and Marberg, as well as all the recruiting horses during the last two years, and made notes in regard to the smallest ocular defects.

Dr. Nowotny treats, first, of the traumatic and then the external periodic inflammation of the eye at the period of inflammation on the one hand, and, on the other, he deals with the defects present at birth or occurring otherwise, as well as the changes which are superinduced by traumatic or symptomatic inflammation of the eye, but which are noticed at a time when inflammation is not present.

It has within its borders the homes of some three Presidents of our country.

The destruction of the pupil of the eye, with a decrease in the intraocular compression, is to be regarded as the pathognomonic symptom of an attack of moon-blindness which has passed away. This symptom is perceptible to the naked eye and to the touch. If these symptoms are not marked, which is not seldom after the first attack, then the ophthalmoscope gives the best means of reaching a diagnosis.

Dr. Nowotny then cites several cases of traumatic inflammation and external periodic inflammation which he had observed. In some cases there were no marks left behind, in others small pigment spots were left on the front lens, or the cornea showed marks of injury.

However, he asserts that muddy places on the front and less frequently on the back lens are often found, which are to be regarded as pigment spots, but not the product of an inflammation of the uvea or the consequence of a traumatic inflammation. They are merely anomalies in the pigment. He cites some thirty-one horses in which these had been noticed, and in no one of them did the animal suffer from eye-trouble. The anomaly can be referred to causes of a purely local nature, as a little portion of the uveal pigment can at times become loose and become attached at one point to the lens-capsule. In reference to moon-blindness proper, seventeen cases are cited, which he had observed from the time of the first attack. In some cases only one eye was attacked, in others both. The period between the first and second attacks varied greatly, and in many cases blindness of one or both eyes followed ultimately. Not always after the first attack did such changes in the affected eye remain as could be detected without the help of the ophthalmoscope, and in not a few cases such unimportant changes have taken place that the examination with this instrument is practically without result. The color of the pigment varies, and the changes are in many cases so small that even a veterinarian experienced in the use of the instrument will reach no definite result. In most cases the investigation of the transparent media of the eye must be made in ordinary daylight, and the examination of the background of the eye will only in rare cases show such changes as can be regarded as pathognomonic symptoms of moon-blindness.

Remember the Southern field is just opening.

Most horses become moon-blind between three and six years of age, although the first attack may not take place until the animal is between eleven and fifteen years old. Two fresh horses which he examined with the ophthalmoscope in the spring of last year and accepted as sound were attacked very soon after that,—the first one in thirty-eight days, the second in seven weeks—so that we have a proof that horses which have been found all right by the examiner can shortly after become a prey to moon-blindness, the minute inclination to this trouble not always being detectable with the ophthalmoscope.

From his observations Nowotny draws the following conclusions: 1. That in spite of examination with the ophthalmoscope by a qualified veterinarian many cases of internal periodical inflammation will occur in fresh horses in the future. 2. As the law regarding the purchase of military horses now stands, an attack of moon-blindness in the future can only be regarded in the light of a defect which only partially falls under the conditions of the law. 3. That a too severe procedure on the part of the examining veterinarian will lead to the rejection of many good horses, as slight local anomalies, as has been explained, often occur and lead to no further trouble.

It will have places for your brothers and your children in the future.

In conclusion, it should be remembered that many military horses which have been mustered out are sold and used for breeding purposes. As long as these animals have healthy eyes no evil can come of it, but it would be a wise provision if those with moon-blindness were so branded, so that no deception can be practised and the owner claim that the animal went blind as the result of some injury.

REPORTS OF CASES.

I. INFECTIOUS PNEUMONIA. II. TETANUS. III. DIABETIC SYMPTOMS FROM CONTAMINATED DRINKING-WATER.

By J. W. Petty, D.V.S.,
GREENSBORO, N. C.

I. On March 26th I was sent by the Greensboro, North Carolina, Board of Agriculture to investigate an outbreak at Summerfield, which proved to be infectious pneumonia. Post-mortem was held on one gelding that had died, and the lungs showed circumscribed cavities, some of which contained gangrenous fluid; others contained pus and some broken-down lung-tissue, all of which showed the different stages of the disease and the progress made upon the different parts of the lungs. After a detailed examination I diagnosticated it as above. All the animals that had been sick for ten days died. Three horses at this time were in the congestive stage, and two showed elevated temperature, cough, loss of appetite, and restlessness, and some profuse diarrhœa and others constipation.

All the sick and exposed animals were immediately quarantined, and the sick treated with acetanilid as required to control fever, ammonia muriate, cinchona in whiskey, and other stimulants as indicated, and proper attention paid to the regulation of the bowels, ventilation, and clothing. The exposed ones were isolated and treated with prophylactics, and only one of them contracted the disease. All made a good recovery with the exception of slight abdominal breathing as a result of the cavities in the lungs.

The railroad trip alone would reward you for the time and expense.

II. I recently treated successfully two cases of tetanus with quinine in ʒss doses three times a day, with belladonna and chloroform as needed. Horses with tetanus seem to stand a large amount of quinine.

III. Called recently to investigate a supposed contagious disease, I found ten horses in one stable showing symptoms of diabetes —*i. e.*, wasting of flesh and diuresis. All the patients urinated several times daily. Investigation showed that a quantity of pine sawdust used for bedding had drained into a shallow well, only a few yards away (down hill), from which the horses were watered. The turpentine, etc., could be tasted in the water, and it was very evident that the absorption from the pine-dust was the cause of the trouble. Of course, I ordered water from another well, and the horses are now free from the symptoms.

TETANUS: THE USE OF ANTITOXIN.

By C. Z. Laberge, V.S.,
BEAVER FALLS, PA.

Bay draught-gelding, first seen May 5, 1897. Diagnosis: Tetanus; had been presenting symptoms of the disease for the last five days; deglutition impossible; urination and defecation *nil;* locomotion very difficult and painful; animal very much excited; temperature, 39.3° C. The horse was placed in an orchard, being the only place on the farm free from noise, and a mixture of chloroform, opium, and chloral, one ounce each, ordered. Mulford's tetanus antitoxin was obtained as soon as possible, and at 12 M. on the 6th 2 c.c. were injected, and the same quantity repeated at 8 P.M., with no perceptible change in the animal's condition. At 5 A.M. on the 7th the horse was somewhat better, having urinated, drank two bucketfuls of water, and eaten a quart of bran; temperature, 39.1° C.; no action of the bowels; 2 c.c. were given. At 2 P.M. the movements of the animal were less painful, breathing easier, and he ate a small portion of oats and was again injected with 2 c.c. of antitoxin. No action of the bowels having been obtained, 2 c.c. of eserine solution, 1 : 20, were given; temperature, 39° C. At 12 M. on the 8th temperature was 39° C.; movements of the animal were better; ate two quarts of oats, drinking freely, not so excited, kidneys working freely, no action of the bowels. Injected 15 grains of chloride of barium in 2 c.c. of water intravenously, followed in fifty-five minutes by a copious movement of the bowels and three others in the next fifteen minutes. May 9th the horse worse; temperature, 39.2° C.; animal more excited; not eating so well. The chloroform, opium, and chloral were continued, and on May 10th the horse was worse, temperature of over 40°, still able to eat and drink, but great difficulty in urinating and no action of the bowels. Gave another intravenous injection of 15 grains of chloride of barium and a little later 2 c.c. of tetanus antitoxin. At 11 P.M. the same day no change except animal quieter, and repeated the injection of 2 c.c. of antitoxin. May 11th, 7 A.M., temperature 39.2° C., eating well, urinates easily, but no action of the bowels. Renewed the injection of 15 grains of barium chloride intraveneously and had four good movements; later gave 2 c.c. of antitoxin. At 3 P.M. horse still better, very quiet; gave 2 c.c. antitoxin; temperature 39.2° C.; 11 P.M. temperature 39.1° C., walking easily, picking grass from the ground, drinking out of the trough. May 12th, horse continued to improve rapidly; temperature 39° C.; animal able to trot and run after his master for his feed, and chased the girls from the orchard, which was a very noticeable disposition of the horse when well. Animal kept on improving until May 27th, when he went to work, drawing stone from the quarries, going through the town, having to pass electric cars, but these in no way disturbed him.

It will convey you through territory of our country that but few members traversed.—To Nashville, Sept. 7th, 8th, and 9th.

Dr. Edward S. Kalb, of Rochester, Minnesota, reports a case of a horse injured by a collision on the race-track on June 2, 1896, producing an incision ten inches long on the right side, just below the cartilages of the false ribs, together with extensive bruises of the hind limbs, all of which he recovered from in about three weeks and went into his season's training in fair shape. On March 27, 1897, this horse received a purgation-ball consisting of one ounce of Barbadoes aloes, one drachm of calomel, and two drachms of ginger. It was followed by considerable griping and purgation in thirty-six hours. Patient continued in some pain, with a quick pulse and high temperature for one week, when he died.

California may send here to this attractive point delegates to pave the way to the Pacific coast in 1899.

Post-mortem revealed an adhesion of the cæcum to the abdominal wall, directly under the seat of injury, to which was attached an abscess involving the lower part of the cæcum and a portion of the large colon. The abscess had broken, but could be easily traced. The intestines were highly congested, and the peritoneum inflamed. The kidneys slightly hypertrophied and congested. Other organs normal.

The writer wishes to know which killed the horse, the injury or the pill?

U. S. V. M. A.

ON TO NASHVILLE!

The fourth annual meeting of the Association of Veterinary Faculties of North America will be held in connection with U. S. V. M. A., at Nashville, Tenn., Wednesday, September 8, 1897. The following papers will be read: "Uniform Courses of Instruction," Dr. John W. Adams, University of Pennsylvania; "Minimum Standard of Entrance Examinations," Drs. D. E. Salmon, Columbian University, and James Law, Cornell University; "Uniformity of State Regulations Governing the Practice of Veterinary Medicine," Dr. W. Horace Hoskins, Philadelphia. The following are the officers of the association: President, Dr. Leonard Pearson; Secretary and Treasurer, Dr. H. D. Gill, 154 E. Fifty-seventh Street, New York City: Executive Committee, James Law, M. Stalker, D. McEachran, D. E. Salmon, and J. L. Robertson.

Discussion of tuberculosis, including the following topics: "Results Attained and Attainable by State Control;" "Value, Defects, and Difficulties of Municipal Control;" "What Should be Done with Tuberculous Cattle?" "What Use Should be Made of the Milk from Tuberculous Cows?" "What Use Should be Made of the Flesh of Tuberculous Animals?"

Chicago veterinarians are favored by excursion rates to Nashville and return for the sum of $10.80.

The following papers will be read at the convention: "The Disposition of the Flesh of Tuberculous Animals," and "A Review of the Field of Veterinary Science," Dr. Leonard Pearson: "The Action, Experimentally, of Tuberculin on Healthy Animals," Dr. T. D. Hinebauch; "Our Milk-supply," Dr. Charles Ellis; "Infectious Mammitis in Cows," Dr. E. A. A. Grange; "Malignant Catarrh of the Ox," Dr. A. Youngberg; "Texas-fever Investigation," Dr. J. W. Connoway; "Radical Operation for Contracted Hoof," Dr. C. C. Lyford; "Some Diseases of the Horse Peculiar to the Mountain Region," Dr. M. E. Knowles; "The Veterinary Field in the South," Dr. W. H. Dalrymple; "The Necessity of Veterinary Instruction in Medical Colleges," Dr. E. P. Niles; "Osteoporosis," Dr. C. A. Cary. Drs. Wm. Dougherty, S. J. J. Harger, and others will also read papers, the subjects of which, however, are not yet announced.

The programme of entertainment of the United States Veterinary Medical Association, September 7th, 8th, and 9th, will be as follows: Headquarters, Tulane Hotel. Address of Welcome, by Hon. John J. McCann; response by President of the Association; business of the Association; ladies taken in charge by local committee, visiting Centennial in a body.

Second day, morning. Ladies visit Capitol, Phillips & Buttoroff Manufacturing Co., and other places of interest. *Afternoon.* Both ladies and gentlemen congregate at Union Depot for a trip to Belle Meade; returning at night, stop at Exposition.

Third day.—Go-as-you-please for gentlemen; ladies visit Exposition, and take trolley ride around the city; banquet at Tulane.

Where will the meeting of 1898 convene?

The health officers of Nashville and of Davidson County report an excellent sanitary condition of all the Exposition grounds and buildings, the general freedom from disease of all kinds of the city of Nashville during June. This augurs well for our convention, for September is said to be a specially pleasant month of the year in that territory.

It is the veterinarian who never attends association meetings that say they do not pay, and they cannot afford the time or expense.

Veterinarians in the Eastern States are offered an extremely pleasant trip to Nashville, and the following attractive rates via M. & M. T. Co., Boston to Nashville and return. Tickets on sale Tuesdays and Thursdays, good fourteen days, in addition to date of sale, $32.65; tickets on sale daily, good twenty-four days, in addition to date of sale, $38.05. These rates include meals and state-room accommodations on M. & M. T. Co.'s steamer. Upper-deck state-room berths are $1.50 extra in each direction. The steamer leaving Boston Thursday, September 2d, at 2 P.M. is due at Norfolk 4 A.M., September 4th. Train via Southern Railway leaves Norfolk 9.25 A.M., due in Nashville 1.35 P.M., Sunday, September 5th, the only line running through car-service from Norfolk to Nashville, passing through the most beautiful scenery of Western North Carolina, the "Land of the Sky," thence Knoxville and Chattanooga to Nashville.

Nashville will point the way for '98 and '99.

On page 466 of the July JOURNAL, referring to those wishing to attend Nashville from Philadelphia, Tuesday, September 3d, should read Thursday.

$32 65 will take you from Boston to Nashville and return; this includes meals and state-room on steamer. New Yorkers may obtain a ten days' excursion rate for Nashville on Tuesdays and Thursdays for $25.30. Members from Washington may obtain a ten-day rate of $15.30 from Washington to Nashville and return.

Rates via Pennsylvania Railroad to Nashville: For a season excursion rate from New York via Pittsburg, $38.50; via Washington and C. & O., $35.50; from Philadelphia, $34.75 and $33.25; from Baltimore, $30.55, and the same via Washington.

Dr. A. W. Clement, of Baltimore, Maryland, will present the subject of "Rabies" at Nashville, and will view it from the standpoint of State medicine and the part to be taken in its control and suppression.

Dr. George Kinnell, of Pittsfield, Mass., will read a paper on "Toxalbumins and Antitoxins," at Nashville.

All veterinarians in New York State, New Jersey, Eastern and Central Pennsylvania, Delaware, Maryland, District of Columbia, and Virginia will find the special ten-day excursion rates of the Southern Railway Company a very favorable way for reaching Nashville.

The "Land of the Sky" from Asheville to Chattanooga will be a revelation of beauty to those who have never passed through that wonderfully attractive and interesting country.

The Washington and Southwestern vestibuled limited, leaving New York at 4.25 P.M., Philadelphia 6.55 P.M, Baltimore 9.20 P.M., Washington 10.43 P.M., on Tuesday and Thursday passes through the "Land of the Sky" by daylight.

Drs. D. E. Salmon and E. P. Niles, M. H. Reynolds, and John M. Parker will specially discuss the tuberculosis question. This insures a keen interest in this all-important topic.

It looks like a great outpouring of the profession at Nashville. A list of those who have indicated their intention of being present includes Drs. S. B. Nelson, Pullman, Wash.; M. E. Knowles, Butte, Mont.; T. S. Hinebauch, Fargo, Dak.; M. R. Trumbower, Denver, Col.; A. S. Wheeler, Biltmore, N. C.; W. H. Dalrymple, Baton Rouge, La.; J. F. Winchester, Lawrence, Mass, and Dr. J. C. Norton, of Arizona, and many others. Large delegations will attend from Minnesota, Indiana, Illinois, and Missouri.

New York State Veterinary College will be represented by Professors Law and Williams.

Remember that all the main passenger lines have reduced rates to Nashville, 20 per cent. off of regular fare for round-trip tickets, daily sale; on special days of each week a still greater reduction for ten, fifteen, and twenty-day limits. This is better than the usual one and one-third rates obtained by the association.

Many will have their wives at Nashville. How about yours?

We have received several communications from Western veterinarians advocating a reduction in the annual dues of the U. S. V. M. A. The Executive Committee will probably be asked to consider the advisability of this step.

Among those who are applicants for membership at Nashville, we note the names of Drs. Charles W. Heitzman, of New Orleans, La.; J. C. Robert, Agricultural College, Mississippi; M. Francis, College Station, Texas; G. N. Kinnell, Pittsfield, Mass.; E. M. Ranck, Philadelphia, Pa.; Joseph M. Good, Chattanooga, Tenn.

One of the late announcements of papers for Nashville is one on "Operative Dental Surgery," by Dr. L. A. Merillat, of Chicago, Ill. This is always a topic that gives rise to a variety of opinions, and has been the field of more charlatan work than any branch of veterinary science, and will awaken at Nashville an interesting discussion. Other live subjects are equally in order.

Veterinarians who are not able to purchase tickets direct to Nashville from the point of departure should purchase tickets to the nearest large railroad centre, where the special excursion rates granted by all main lines may be obtained.

The programme is more than attractive.

Every member of the association should charge himself with bringing in one new member of the association. There are five hundred good men we could name, all of whom should be members of the U. S. V. M. A. The Secretary will furnish you with application blanks and copies of the constitution and by-laws. When you read this, act on the suggestion made at once. You owe it to the association, and it is your duty to your nearest worthy colleague.

EDITORIAL.

WINNIPEG A GOOD EXAMPLE.

THROUGH the efforts of her earnest, well-informed veterinarians Winnipeg enjoys to-day the most complete safeguards of her milk-supply. From the source of production, the animals that furnish it, the seller or vendor in the street, and the shops where it is distributed, not an avenue of danger is left unguarded, and the milk-consumers of that city have more to be thankful for than any large city of North America. These regulations have been compiled in pamphlet form, and every city intending to better guard the interests of its people should study well the regulations of Winnipeg.

Manitoba in general seems to be a happy realm for veterinarians. Her people have learned of their value, and have been eager at all times to avail themselves of the best and broadest services the profession has had to give. Acting upon this plan they are better protected in their food-supply; they are freer from impostors and quacks than any other country, and no just estimate can be made of what they are saved from in material losses through efficient and intelligent veterinary services. All honor to the people of Manitoba, and all praise to her earnest veterinarians!

THE KEYSTONE STATE TAKES AN IMPORTANT STEP.

PENNSYLVANIA'S Legislature has just appropriated the sum of fifteen thousand dollars for use in the investigation of contagious and infectious diseases of domestic animals. We believe this is the second State to move in this special direction. Nebraska led in this movement, and while many other States have yearly appropriated money to control these diseases, none save those mentioned have equipped themselves for original investigation and appropriated money for this special work. Pennsylvania's representatives are to be congratulated on this important step, for it means much to those engaged in the live-stock industry, and whose burdens have been specially heavy to bear in recent years. It means much to her people in the better control of a purer and more wholesome meat- and milk-supply. Specially are the veterinary profession to be grateful to State Veterinarian Pearson, whose indefatigable labors have brought forth this result under the most adverse circumstances that have ever confronted new legislation of any kind that demanded State funds for its enforcement. Early and late he labored among those whose interests were imperilled, and in an educational manner impressed all who had at heart the agricultural and live-stock interests the importance of the work, and that the Keystone State should be among those that lead in this interest, as she has done in so many other directions. Governor Hastings, fully concurring in the desire to render these interests better protection and stronger safeguards, gave the bill his approval, and he thus renders to the people of the whole State a benefit that cannot be estimated in a monetary aspect.

U. S. V. M. A. PROCEEDINGS.

WITH the July number of the JOURNAL we completed the production for our subscribers of the entire proceedings of the United States Veterinary Medical Association Convention of 1896. This was secured for our readers at a great expense to the publishers of the JOURNAL. It has been reproduced in a manner by which it can be readily removed from the issues of the JOURNAL and bound in a separate volume, so that those who are not members can have a complete report of the doings of the national organization at no expense beyond the regular subscription fee of the JOURNAL. In doing this the JOURNAL has at the same time given to its readers the average quota of sixty-four pages of other matter, and thus added this report as a premium. The '96 meeting of the Association was one of the best ever held in the history of the U. S. V. M. A.,

Section work will be on trial. Are you preparing to sustain your special line of interest at Nashville?

and, therefore, the report of its doings was the recording of an important epoch in association achievements. It was the only complete report produced by any veterinary journal in North America, and in this is a true index of the JOURNAL'S purpose in sustaining the best interests of the veterinary profession in North America. Many of those who subscribed only for 1897 failed to receive the early portions of the proceedings, which commenced with the October number of 1896. We provided a sufficient number of the last three numbers of 1896 to fill one hundred extra orders of these numbers for those who wish to complete for reference or binding this report, at the regular price for the JOURNAL. The value of these reports increases with each year added to the association's history, and to the coming meeting at Nashville is added increased interest by the wide dissemination of the past work of this organization, and thus journalism keeps full pace in all its efforts to sustain and enlarge the usefulness and power of association circles in better doing the work of the profession's advancement.

Representatives from States never before represented in our conventions will be with us.

VETERINARIANS will bear in mind that Senate Bill No. 1063 still remains on the calendar of that body waiting a favorable opportunity to be called up for passage. This bill strikes right at the root of all original investigations of the Bureau of Animal Industry, and would likely be followed by similar efforts in many States, and thus would halt all progress in human and comparative medical science.

THE GOOD STILL INCREASES.

THE failure of Governor Pingree, of Michigan, to reappoint as State Veterinarian Dr. E. A. A. Grange, who so well filled the position for so many years, will not be without its compensation to the profession, who will rejoice in the knowledge that he has been called by the Detroit Veterinary College to take charge of that institution, and with the power granted and instruction given to make this school one of the best in the country, in full accord with all the leading veterinary institutions of our land. It will at once be made a three-years' curriculum of six months each, and the warm place Dr. Grange has always held among his colleagues will enable him to call to his aid the best men of that section of our country.

The authorities of the Detroit College are to be congratulated on so wise a selection. They secure in Dr. Grange a well-equipped man by experience, training, and ability, and we are very sure that this school will now take a prominent place in the galaxy of schools and add a powerful influence to the movement for higher veterinary education in America. It is unfortunate that the State loses so valuable an officer and the Agricultural College so efficient a teacher, but the wider sphere of his usefulness in his new field will bring to the whole State a greater return than can be measured at this time.

AN EXCELLENT SELECTION.

We are indeed very much rejoiced to announce the appointment of Prof. Leonard Pearson to the important post of Dean of the Veterinary Department of the University of Pennsylvania. We have long felt, in common with the profession, that all such places should be held by veterinarians, and while this position has been well filled in the past by Dr. John Marshall, a very earnest and true friend of the veterinary profession, a capable and efficient officer, we are still of the opinion that it has not been without its drawbacks to the institution, and that the selection of a veterinarian will add very much strength to this school in the eyes of the profession. Specially will the institution be benefited by calling to this place one so peculiarly well equipped. The happy faculties demanded for a successful man in such a place as this are more than possessed in the broadest sense by Prof. Pearson, and we look for greater strides, greater results, and greater honors for this department under his direction.

Make this your summer outing trip, at Nashville, Sept. 7th, 8th, and 9th.

Editor Tait Butler, of the *Southern Farm Gazette*, very forcibly criticises the dangerous and ignorant advice of one "Shep," who poses in the *Breeders' Gazette* as one capable of answering all questions as to treatment of diseases of sheep. The *Breeders' Gazette* is too good a paper to tolerate such exhibitions of ignorance and presumption in its columns.

The Journal has received many very warm and appreciative comments of Messrs. Cary, Reynolds, and Connoway bulletins, for all of which we are proud.

WHY IS IT THUS?

In another portion of this issue will be found a careful, painstaking review of the work in Massachusetts, to which we have repeatedly called attention and scented danger ahead to the welfare of our professional standing and occupation. We strongly urge all our readers to carefully peruse this presentation of the facts by one of our staff contributors, and learn from it the lessons of danger it teaches. A better understanding by all will make more forcible in one's mind the necessity of our getting together on all movements of public import and of being at all times able to present a single plan of action for effective work, except in mere details of enforcement.

NECROLOGY.

Dr. W. D. Farnum, of Rockland, Me., a graduate of the American Veterinary College, class of 1889, died suddenly at Rockland, Me., falling dead from a sulky while driving a trotting horse, of which he was owner, in a race on July 5, 1897.

REVIEW.

The Report of the Committee Appointed by the Massachusetts Legislature to Examine into the Matter of Tuberculosis of Cattle. House Document 1341. Boston, Mass.

On April 9th of the present year a joint special committee of the Massachusetts Legislature was appointed to investigate and report upon the post-mortem examinations of certain cows from Lowell and Dracut that were condemned as tuberculous after the application of the tuberculin-test. This committee was made up of eleven members from the House and Senate, and their report was published on May 25, 1897. They employed as experts to assist in the examination of these animals Dr. H. C. Ernst, of Boston; Dr. Theobald Smith, of Boston; Dr. George N. Kinnell, of Pittsfield; Dr. Charles R. Wood, of Lowell, and Dr. Frank S. Billings, of Grafton. It seems that 150 cattle in the vicinity of Lowell and Dracut were examined by a private

Rest is often found in a change of scenes and among your old acquaintances.

firm of veterinarians. Of these 128 responded to the test in such a manner that they were condemned as tuberculous, and 2 (?) were condemned as tuberculous on physical examination. The discovery of such a large number of tuberculous animals in herds that were not known to be seriously infected caused considerable alarm, and one of the members of the Legislature from the district in which the diseased cattle were found proposed that the committee, as above referred to, should be appointed to make a thorough investigation of the matter, and this was done with the assistance of the experts named above.

The publication contains a majority report signed by nine members of the committee, and a minority report signed by two members of the committee, together with a separate report from each of the experts. The reports of the experts furnish the complete facts in reference to the post-mortem conditions found, and also include summaries of the work done and various pertinent and impertinent suggestions. The experts agree in the main as to the post-mortem lesions, and the facts in reference to the work as compiled from the various reports seem to be as follows :

Not less than ten colleges will be represented at Nashville. Your old teachers may be among them.

Of the 130 animals condemned, 128 responded to the tuberculin-test, and 2 (?) were condemned on physical examination. The post-mortem examination of the 130 cattle showed that 126 of those condemned by the tuberculin-test were actually tuberculous, while the other 2 did not show any evidence of tuberculosis that could be detected by the naked eye, and glands were reserved for microscopic examination, which will be reported upon later. The two condemned on physical examination were found to be free from tuberculosis when slaughtered. In order to ascertain with what degree of thoroughness the disease had been eradicated from the remaining 20 animals that were not condemned, these were also purchased by the State and killed. It is to be observed that the 20 animals belonging to this category were kept in the infected premises occupied by the diseased herds for from between five and six weeks after they were examined, and although a second test prior to the slaughter was suggested by some of the experts and members of the committee, it was not made.

Upon post-mortem examination 6 of these 20 animals were found to contain the lesions of tuberculosis, the extent of which is shown by the following quotations from the report of Dr. Harold C. Ernst : "Cow No. 2, a number of fairly large, broken-down tuber-

On to Nashville and the "Sunny South."

culous nodules in the right tracheal gland; multiple tubercles in one mediastinal gland. Cow No. 3, multiple tuberculous foci (small) in left bronchial gland and in upper mediastinal gland; a single small tubercle in right caudal lobe, a flat suspicious-looking nodule on external muscular surface of the abdomen. Cow No. 14, minute tubercles in both mediastinal glands, a small one in the right caudal lobe. Cow No. 15, a single calcified pinhead nodule in one left bronchial gland. Cow No. 18, several minute tubercles in posterior mediastinal glands." The reports of Dr. Theobald Smith and the other experts agree with the above. In reference to this series of post-mortems Dr. Ernst remarks that "it is unfortunate that they were not all re-tested just before the slaughtering, because it is quite open to question whether the infection did not occur after the first injection of tuberculin. *In none of them was there any extensive infection.*" In four the lesions were confined exclusively to lymphatic glands, while lesions existed in the lymphatic glands in the other two, and there were also single tubercular foci in the lungs, one in each animal. Of the 128 animals condemned with tuberculin the report shows a much higher degree of infection in most of them than was observed in the 6 tuberculous animals that were not condemned. Some of them, in fact, were very extensively diseased, and the lesions were found widely distributed throughout the body. Infection of the udder was not noticed in any case, although in two cases the lymph glands of the udder were involved.

Based upon these investigations the majority of the committee makes various recommendations, of which the three following are of the greatest importance and interest:

1. Attention is called to the necessity of thoroughly cleansing and disinfecting the buildings in which condemned animals have been kept, and this, it is stated, should be done at the earliest opportunity and under the order or supervision of the Board of Cattle Commissioners, or their agents, and before other animals are placed therein.

If this recommendation is based upon the experience of the committee there is every reason to believe that it is in effect a statement that they know of cows that have probably become infected from infected surroundings, and a tacit admission that such may have been the case in some of the six tuberculous cattle that were not condemned by the test made between five and six weeks before the animals were killed.

2. It is stated that a large proportion of the tuberculous animals that were killed were so slightly affected as to warrant the use of their meat for food if slaughtered and dressed under proper supervision. This may justly be regarded as one of the most important results of the investigation, and it is to be hoped that this matter will remain under consideration, and that in time provision will be made for some proper supervision, so that much of the perfectly wholesome meat from animals slightly affected with tuberculosis may be utilized and the enormous waste that now results from the total destruction of much of this food may be avoided.

3. It is stated that the Legislature should at once deal with the matter of indiscriminate tuberculin-tests.

In order that this last subject may be made perfectly clear it should be stated that the Cattle Commission under its recent regulations was obliged to take over and pay for all tuberculous animals that were reliably condemned and reported to them, whether the examination was made by their own agents or by others. A considerable number of cattle-owners in Massachusetts have thought that it was to their advantage to employ private veterinarians to test their cattle and report the tuberculous ones to the Cattle Commission for condemnation and appraisement. They seem to do this in preference to having all the work done by the Cattle Commission, to avoid delay. The result is that during the present year $160,000 of the $250,000 appropriated for this purpose had been expended up to the date of the report, and if the Commission were compelled to kill all reacting animals and allow compensation for them, the remainder of the appropriation would soon be exhausted, and as the Commission cannot exceed its appropriation, all of their work must stop when the money gives out. In order to enable the Cattle Commission to more fully govern the expenditure of the appropriation made to it the committee recommends the passage of an act that provides that all testing of cattle with tuberculin when compensation is expected shall be limited to the Cattle Commission or their authorized agents. This act has already become a law, although the minority of the committee opposed it vigorously.

Louisiana, Georgia, Alabama, Mississippi, North Carolina, Texas, South Carolina and Kentucky will be represented.

This report has been referred to in the general press, and many unfounded deductions as to the accuracy and reliability of tuberculin have been drawn from it. A careful analysis of the report shows that of the 130 animals condemned as tuberculous and killed, 128 were condemned by tuberculin, one was condemned upon physical examination, and in reference to the other there seems to be a difference of opinion; but as a matter of fact the animal was not condemned at all, but was sent to the abattoir with the other cattle by mistake, and therefore should be disregarded in the compilation of the result. The cow condemned on physical examination was found to have a number of fistulous tracts passing from the stomach through the diaphragm into the thoracic cavity, and her stomach contained metallic foreign bodies. She was afflicted with a cough, was emaciated, and her symptoms in general were quite similar to those observed in advanced cases of tuberculosis. As this animal was not condemned by the use of tuberculin, it can also be disregarded in the compilation of the results. This leaves 128 cows condemned, of which 126 were shown to be tuberculous, while lesions of tuberculosis were not found in the other two, but the microscopical and bacteriological examination of their tissue has not yet been reported upon.

What are the Eastern States going to present and do for our Nashville meeting?

Granting that this examination will prove negative, the errors amount to 1.56 per cent. In reference to the other series, it is not possible to form an opinion as to the accuracy of tuberculin, on account of the interval that elapsed between the application of the test and the slaughter of the animals. If, as is reported by some of the experts and by the minority of the committee, four of these animals were probably infected after the test, and, as stated by Dr. Kinnell, one (No. 15) was evidently a recovered case, there remains but one that can be counted as an error of the tuberculin-test, and this means 5 per cent. of error; but in view of the wrong method followed in this portion of the examination, it is not advisable to base a statement as to the accuracy of tuberculin upon it. On the whole, the work justifies everything that has ever been clinically claimed as to the accuracy of tuberculin as a diagnostic agent. It has never been claimed that it is infallible, but its remarkable accuracy has frequently been emphasized, and the results published by the Legislative committee in Massachusetts show it to be more accurate as a diagnostic agent than do the Government reports that have appeared in Germany.

The investigation has developed no new scientific truths, but it has led to the passage of the act providing that all inspections shall be made under the direct supervision of the Cattle Commission, and perhaps it has served other local and private needs that are worth $6000 to the Commonwealth of Massachusetts.

LEONARD PEARSON.

BIOLOGICAL PRODUCTS INDICATED IN VETERINARY PRACTICE.

VETERINARIANS unfamiliar with the recent advances in the production of antitoxins, and who have not acquainted themselves with their methods of use and the results to be sought for, will find in the little monograph issued for veterinarians specially by H. K. Mulford Co., of Philadelphia, one of the most concise, complete, and ready-reference publications that has yet been issued. A request to the company, at their home office, or their branch house in Chicago, will bring this useful little up-to-date book to every reader of the JOURNAL.

LEGISLATION.

New Jersey.—An act to secure the sanitary condition of cow-stables and dairies, and to prevent the feeding of cows and certain cattle with unwholesome food, which has been referred to the Committee on Agriculture and Agricultural College, was introduced to prevent the feeding of garbage or impure or sour foods to such cattle as have been selected for fattening with a view to using them for food, and also to prevent the cattle being kept in an unhealthful or crowded condition. The fine for such misdemeanor to be not less than $50 nor more than $250, which if not paid at once renders the culprit liable to thirty days' imprisonment. An exception is made of ensilage in a properly prepared condition.

•At Nashville, in September, will be the most important gathering to consider tuberculosis, ever held on American soil.

Pennsylvania.—An Act to Provide for the Investigation of the Diseases of Domestic Animals and making an appropriation therefor:

SECTION 1. Be it enacted by the Senate and House of Representatives of the Commonwealth of Pennsylvania in General Assembly met, and it is hereby enacted by the authority of the same, That the sum of fifteen thousand dollars, or so much thereof as may be necessary, is hereby appropriated for the purpose of conducting investigations concerning the causes, nature, treatment, and prevention of the diseases of the domestic animals of the Commonwealth of Pennsylvania, with the object of discovering new facts which may be applied advantageously and profitably by the owners of live-stock and those engaged in the care, use, and rearing of animals.

Experiment-station work, and how it can best accomplish its aim and purposes, will be considered.

SEC. 2. That such investigations shall be made by and under the direction of the State Live-stock Sanitary Board, and the said board is hereby authorized to provide for and conduct such work of investigation as may be necessary to discover the most efficient, economical, and practical means of avoiding and suppressing the diseases of the domestic animals of this Commonwealth; and such work and the practical deductions therefrom shall, upon the order of the Secretary of Agriculture, be published as a part of the annual report of the Department of Agriculture, or as bulletins from said department.

SEC. 3. That all necessary expenses under the provisions of this act shall, after approval in writing by the Governor and the Secretary of Agriculture, be paid by the State Treasurer upon the warrant of the Auditor-General in the manner now provided by law.

SEC. 4. That this act shall take effect June first, one thousand eight hundred and ninety-seven.

The Horseshoers' Bill in this State was defeated on third reading in the House in June. The shoers will try again next session, when under more favorable circumstances it is expected that they will secure passage of their measure.

The Hamilton Good Roads Bill has passed the State Legislature, was signed by the Governor, and will be a long step in the right direction in promoting in the Keystone State the interests of horse-breeding, encourage more driving, and in every way contribute to the betterment of the equine industry.

Delaware. The present Legislature has passed a law providing for the payment of eight dollars for each animal dying from anthrax, in order to provide for the proper and safe burial of the carcasses.

District of Columbia. A bill has been introduced into Congress providing for the examination of animals supplying milk to the citizens of the District of Columbia, and to insure the supply being from animals free from tuberculosis; all animals to be examined and tested by veterinarians.

Kentucky. An Act has been passed in this State providing for the destruction of horses suffering with glanders or farcy. Owners of animals destroyed will be reimbursed to the extent of fifty dollars per head.

Connecticut.—The Legislature of this State has wiped out the commission of three to enforce the law relative to bovine tuberculosis, and Governor Crook has appointed ex-State Senator William B. Sprague as Commissioner on Diseases of Domestic Animals. Mr. Sprague is a member of the Board of Agriculture and Vice-President of the Connecticut Dairymen's Association.

Section 211, amending Section 3671, relating to glanders, so that when an agent of the Humane Society finds a case of glanders or farcy he may call in a veterinary surgeon at the society's expense. If they agree that the animal is infected, the agent shall notify the owner, and unless the owner calls in a veterinarian within forty-eight hours, he must separate the animal from all others, except cattle, for ten days. If he still refuses to call a veterinarian, the agent and veterinarian of the Humane Society shall make a second examination, and if they agree that the animal is infected, the Humane Society may order its destruction. But if the owner calls a veterinarian and he disagrees with the Humane Society's veterinarian, a majority shall decide, and if infected the animal shall be destroyed at the owner's expense. The expense of the veterinarian called by the owner shall be paid for by him, and the expense of the third veterinarian shall be paid by the State.

Those who failed to view the World's Fair should not miss the Nashville exposition.

The glanders law further provides that no veterinarian shall be employed unless a graduate of a regular school and of two years' practice in the State.

Section 199 repeals the tuberculosis law of 1895, and provides that any person bringing cattle into the State shall within six days notify the Commissioner on Domestic Animals. When any disease exists among domestic animals in this State, the commissioner may quarantine all affected animals and prohibit the sale of their products, "but no animal shall be quarantined that does not give evidence of disease by competent physical examination, and no animal shall be quarantined more than thirty days." If the commissioner decides that quarantined animals should be killed, he may cause them to be killed after their value has been adjusted by the commissioner and their owner, and if they cannot agree, a third person may be called in, and the value determined upon shall be paid by the State. "But no animal whose physical condition indicates that it is of no real value, and no animal that has not been in this State for six months prior to its quarantine shall be paid for by the State." The commissioner shall inspect animals at the request of the owner by physical examination; if free from disease "dangerous to the public health" he shall so certify to the owner. It is made the duty of selectmen to report to the commissioner animals "infected with contagious disease." The Governor shall biennally appoint a commissioner who shall be "a practical farmer and stock-breeder of at least ten years' experience." His salary is fixed at $1500 and expenses, and he may appoint assistants with the approval of the Governor.

Those who viewed the splendor of the famous "White City" will want to see Nashville.

The bill destined to require registration of all practitioners in the State and the establishment of a State Board of Examiners, was defeated in the lower branch of the Legislature.

This State has passed a law intended to prevent the spreading of contagious diseases, by requiring those who bring cattle from any other State to notify the Commissioner on Domestic Animals thereof, and to designate the true physical condition of such animals. A violation is punishable by a fine of not more than fifty dollars. The commissioner has the right to quarantine any animals which he considers are affected with any contagious disease. A competent physical examination is required before the quarantine may be enforced, which may not last longer than thirty days. Should the commissioner consider any of the animals endangering public health, he may order them killed, but not before the price of said animal has been fixed satisfactorily to the owner and commissioner, when said price shall be paid to the owner by the State. An animal whose physical condition shows it to be of no value, or one which has not been in the State six months prior to its condemnation, shall not be paid for by the State. It is the duty of the selectman of each town to report to the commissioner all cases of contagious diseases. The commissioner is appointed by the Governor for the term of two years, and the salary is fifteen hundred dollars a year. All acts inconsistent with this one are now repealed.

Michigan. The State Legislature of this State failed to pass the bill intended to establish a board of veterinary medical examiners and better regulate the practice of veterinary science in this State. The appointment by the Governor of Dr. Geo. Coester, of Detroit, Mich., as State Veterinarian does not seem to have met with a very warm approval by the veterinary profession throughout the State or those connected with the State Association.

Kansas proposes to try, by statute, to fix the value of animals killed by railroads, and by legislative enactment, also, to punish those who commit rape by having all who are found guilty castrated.

CONTROL WORK.

Pennsylvania. The State Live-Stock Sanitary Board has issued the following regulation relating to dogs in the counties of Columbia and Montour:

Whereas, There is reason to believe that the disease known as rabies or hydrophobia exists in the vicinity of Catawissa, and the nature of this disease is such that for the present all dogs within certain limits must be suspected of being capable of spreading it; be it

Resolved, By the State Live-Stock Sanitary Board, by the authority conferred by the Act of May 21, 1895, that all dogs in the counties of Columbia and Montour are hereby declared to be in a state of quarantine, and must be strictly confined or firmly secured on the premises of their owners, and not allowed to run at large or enter public highways excepting when led or when muzzled with a well-fitting muzzle that will effectually prevent biting.

After the South there only remains the Pacific coast for us to touch.

This quarantine shall remain in force for ninety days or until removed by the State Live-Stock Sanitary Board."

Attention is called to the following section of the above-mentioned Act: "Section 5.—That any persons or person violating any of the provisions of this Act or any regulation of the State Live-stock Sanitary Board, or wilfully interfering with officers appointed under this Act, shall be deemed guilty of misdemeanor and shall, upon conviction, be punished by a fine not exceeding one hundred dollars or by imprisonment not exceeding one month, or both, at the discretion of the Court." All owners of dogs in the counties of Columbia and Montour are requested to observe the above regulation, which was made by the State Live-stock Sanitary Board at Harrisburg, June 15, 1897, and are notified that it will be strictly enforced.

A recent outbreak of furious rabies was noted near Mauch Chunk among seven sheep, all of which died. They would fiercely attack anyone approaching, and bite at objects placed near them. They had been bitten by a rabid dog.

Railroad fares are in your favor all over the land.

An outbreak of anthrax, causing the death of some twelve cows near Erie, was effectually controlled by the enforcement of the regulations of the State Veterinary Sanitary Board of Pennsylvania.

The Attorney-General of Pennsylvania has just decided that State authorities are empowered to authorize the shooting or destroying of dogs running at large in counties or districts that are proclaimed as the seat of an outbreak of rabies, and where quarantine measures are in force under the direction of the State Veterinary Sanitary Board.

Kansas.—The experiment is about to be undertaken of allowing cattle from the nineteen counties in Texas above the quarantine-line to be dipped for the destruction of the ticks, and then allowed the privilege of grazing on Kansas pasture-fields. Whether this will be followed by any outbreaks of Texas fever will be watched with much interest.

Texas fever has broken out on a farm near Manhattan. Some twenty-five animals have died and many others are infected. Rigid control measures and a complete quarantine has been declared.

The Kansas Live-stock Sanitary Commission requires certificate of health, showing freedom from Texas-fever, for cattle shipped from a large number of counties of Texas and Oklahoma.

Ontario. Bacteriologist Mackenzie, of the Provincial Board of Health of Ontario, referring to the outbreaks of rabies, says of its origin, that it is more likely due to the introduction of imported dogs, chiefly from the United States. The destruction of masterless dogs, and the enforcement of a muzzling-law for some months after an outbreak were recommended as sufficient for its control.

National. Secretary Wilson has taken up the subject of scab in sheep, which has been so thoroughly agitated by some of the State veterinarians in the West, not because this disease is more widespread than before, but for the reason that the centres of its existence are well-known, the methods of its extension better understood, and what is necessary for its control well defined ; and, acting on this information, he has given public notice to all common-carriers that it is a violation of the law to receive or transport them. When discovered, thorough disinfection of all cars, pens, etc., must immediately follow.

Montana. This State is to-day one of the most aggressive in the creation and maintenance of a veterinary sanitary police system of any of the United States. With an energetic and broad-gauged State veterinarian, there is more being done that will prove of inestimable value to this State and greatly encourage similar plans in other States. Movements of all live-stock are accompanied by health and examination certificates from the State or deputy State veterinarians. Quarantine regulations are rigorously enforced when deemed necessary. A proclamation of the Governor on March 13th announces the conditions under which cattle may enter the State from below the quarantine line of Texas-fever. A similar proclamation relative to the entering of sheep within the State, compelling a thorough examination by the State veterinarian or a District sheep inspector, establishing quarantine regulations necessary for the control and eradication of scab in sheep. Another order proclaiming the general prevalence of tuberculosis and fixing the requirements necessary for entrance of other cattle in the State. Also as to swine, and the various penalties are enumerated applying to those who violate these sanitary measures in exposing, shipping, or driving over roads any animals affected with any contagious or infectious diseases. Another proclamation as to infectious mange in horses and mules, limited in this instance to a well-defined locality, and quarantine measures necessary for its control.

Treasurer Robertson still yearns for the golden shores of California.

The State Board of Stock Commissioners have issued in concise form all the former laws now in force relative to live-stock and agriculture. It contains all the prescribed duties of the commission and the duties and powers of the State veterinarian.

The official deputy veterinarians of Montana so far appointed are as follows: Dr. T. D. McGregor, Butler; H. H. Nelson, Cascade; Charles Brown, Miles City; Dr. J. E. Wamsley, Choteau; H. C. Pickett, Helena; Dr. E. V. Wilcox, Bozeman; Dr. Foster, Fort Assinaboine; and T. F. Bryson, Merrill.

North Dakota officials will recognize all health certificates of the Montana State and deputy veterinarians.

Look out for the report of the Publication Committee.

Deputy veterinarians in Montana are paid five dollars per day and necessary expeness.

Sarcoptic mange has been existing in one county of Montana for several years, although measures have now been inaugurated to stamp it out.

New Hampshire.—The New Hampshire Cattle Commission will experiment on ten thoroughbred Holstein cattle that have responded to the tuberculin-test: one bull, and nine cows, all under four years of age. The milk will be fed to pigs, and the latter slaughtered and carefully examined. Six of the cows have been served, and their calves will be reared on milk from cows tested and pronounced free from tuberculosis. The tuberculin-test will be repeated once in four months.

Mississippi.—Dr. Joseph C. Robert, of the Agricultural College, has been granted an appropriation of $2500 for the purpose of investigating the possibilities of preparing a vaccine or antitoxin to be used on Northern cattle to protect them from the dangers of Texas fever when purchased for the Southern fields, with the purpose in view of improving the live-stock of the South. A carload of cattle were recently purchased in St. Louis, Mo., to commence the line of experiments planned for.

The Francisco Dairy Co., of Newark, N. J., will erect a suitable building for the testing of all new animals introduced into their dairy; also to be used for the treating of all sick and injured animals.

CORRESPONDENCE.

EDITORS JOURNAL OF COMPARATIVE MEDICINE, ETC.:

In a review of the translation of Müller's work on the dog I was surprised to find the following published in the June number of your JOURNAL, from one who is supposed to understand what is due to the fellow-members of his profession: "It is true that a number of books upon diseases of the dog have been published, notably those of Hill, Steel, and Mills; but these works are not of a thoroughly scientific character. They are written for the layman as well as the veterinarian, and are a little more than compilations of the popular knowledge of these matters."

A good cause and a good book can stand on their merits, and do not require the belittlement of the works of others; but when authors so treated are *named*, it is perfectly plain that well-understood principles of professional ethics are violated just as much as if one practitioner were to write in the JOURNAL: "Do not employ Dr. ——, for he is a shallow fellow with very little knowledge of what he professes; but go to Dr.——, who is really the only man in the county who knows thoroughly what he is about." Moreover, the statement above quoted from the "review" in question is, so far as my own work is concerned, not correct, and I am prepared to challenge the reviewer to show that my work on the dog is either "not of a thoroughly scientific character," or "little more than a compilation of the popular knowledge of these matters."

Canada and Manitoba will be represented at Nashville.

When I set about writing my book, in 1891, I realized that in the larger proportion of veterinary colleges no specific course was given on the dog; that equine medicine is not canine medicine; that while the larger number of students of veterinary medicine are fairly well acquainted with the various farm animals in health, such knowledge of the dog is very rare among them; that unfortunately too large a proportion of students of comparative medicine read regularly no books bearing on their profession except some works on equine anatomy, relying on lectures and the notes taken while listening to them for their entire knowledge; hence, I was determined, in the limitations and character of the book I was to write, by the facts of the case as they exist in America, not in

Great Britain or in Germany. What proportion of the students of American veterinary colleges read any work on the dog whatever? What likelihood is there that they will peruse a large and elaborate and expensive work? We must creep before we walk.

I endeavored to produce a work that would treat of the dog in health and in disease, which would be scientific, yet not beyond the student and the busy practitioner; but while scientific I realize that it must not bristle too much with technicalities nor aim to be exhaustive. The fact that soon after its publication it was recommended in the prospectuses of most of the colleges, and that in three years a second edition was called for, would seem to indicate that in the opinion of the profession it had served a good purpose and met a real need.

Control work and sanitary science will have strong and able devotees at Nashville.

Müller's work on the dog is a very valuable work, translated by an able man; but just because it is so, it does not stand in need of methods of pushing which violate professional ethics and are open to legal action. I am glad such a work is accessible to the practitioner to peruse in his own language, and to the more ambitious undergraduate to consult; but to many it will prove strong meat. However, when the time comes that the great mass of students and practitioners regularly read and digest such works, none will rejoice more than myself at the progress made. In the meantime the law of "survival of the fittest" may be left to work itself out in regard to works on canine medicine without deliberate violations of other equal if not more important laws.

Your, truly, WESLEY MILLS.

McGill University, Montreal, June 28, 1897.

EDITORS JOURNAL OF COMPARATIVE MEDICINE, ETC.:

As I am responsible for the review of Dr. Glass's translation of Müller's work on *Diseases of the Dog*, to one portion of which Prof. Mills has taken exception, I hope that you will permit me to say a word in reference to the sentence quoted by Dr. Mills and his criticism upon it.

Without going into the matter in greater detail, it is sufficient to say that Prof. Mills objects to having his work classed with those of Hill and Steel, and the statement that these books are not of a thoroughly scientific character. A careful perusal of Prof. Mills's letter will show that he himself strongly supports this position, although he affects to take exception to it. He admits that his book is an elementary, popular work, and is not put forth as an exhaustive and scientific treatise on the diseases of the dog. Why, then, should I occupy more space in still further refuting an objection which Prof. Mills makes and then so effectually disproves?

The statements that are made in reference to the works of Messrs. Hill, Steel, and Mills are not to their discredit. The books written by them are useful. There is a demand for them, and it is proper that this demand should be met. These works have done much to create a demand for a book of a higher and more scientific character—a book that deals with canine pathology in a more exhaustive manner, and it is this demand that has been recognized and satisfied by Dr. Glass.

There is no need of entering into a controversy with Prof. Mills in regard to professional ethics. I should be very sorry to have written anything that could be regarded as the slightest breach of the strictest code. But what must be the opinion of one who reads the clumsily disguised allusions and the baseless insinuations in the letter of Prof. Mills? I have always believed Prof. Mills to be a thoroughly upright scientist, and one who was deeply interested in the progress of veterinary medicine and veterinary education, and in the present case I regard it as more charitable to think that Prof. Mills is seeking a free advertisement for his own book than to consider his letter an attack upon a work that seems to infringe in a field that he has endeavored to occupy.

Yours, truly, Leonard Pearson.

Philadelphia, Pa., July, 1897.

ENCOURAGING THE IGNORANCE OF RABIES.

Editors Journal of Comparative Medicine, etc.:

In the May issue of the *American Veterinary Review* a veterinarian in Brooklyn reported six cases of dumb rabies occurring in two weeks. Is this not remarkable, when we take into consideration the fact that this is one of the rarest of diseases?

There are many neuroses in the dog which may simulate rabies, and a mere paralysis of the masticatory muscles is no indication or pathognomonic of rabies. I have had two cases of paralysis of the lower jaw, one caused from a blow on the head, the other with protruding tongue, with partial paralysis from swallowing a rag. We have many neuroses in the dog due to reflex irritation.

Will the Association change its name to American Veterinary Association?

The American Society for the Prevention of Cruelty to Animals declare that during the thirty years of their existence there has been no single well-established case of rabies or hydrophobia. This was confirmed by the experience of the most eminent physicians.

Is there an eminent neurologist in the city of New York who has seen a case in his practice?

In the July issue of the *Review*, under the heading "Encouraging the Spread of Rabies," the author, after recording a case in Brooklyn directly traceable to the bite of a dog, which was sold from the shelter, in which he says the animal gave pathognomonic symptoms of dumb rabies, goes on to say that "it appears to us that any animal not claimed by an owner should be put to death, as they have been exposed (as it has been exposed) to too much danger to form a proper companion of human beings (for) (note the grammatical errors) thereby, that we must deny even the owner from redeeming his dog, for would he not be exposed to the danger of hydrophobia also?"

Editor Bell of the "Review" shows a keen journalistic interest in the success of the Nashville Meeting.

What are the pathognomonic signs of rabies? Dr. Charles W. Dulles, the eminent lecturer on the history of medicine at the University of Pennsylvania, after sixteen years of investigation has failed to find a single case on record that could be conclusively proved to have resulted from the bite of a dog. The so-called cases of hydrophobia have been produced by a morbid imagination simulating the disease, and tetanus and septic infection have been mistaken for it when accompanied by the hallucinations of a disordered mind. Then let rabies and hydrophobia, until such diseases are conclusively proved, be relegated to the abandoned vagaries, assure the public mind that it is only imagination, and we will see very little of it.

R. B. Plageman, D.V.S.

1432 Bedford Ave., Brooklyn, July 16, 1897.

PENNSYLVANIA STATE BOARD OF VETERINARY MEDICAL EXAMINERS.

Editors Journal of Comparative Medicine, etc.

Veterinarians desire to inquire if the practice of meat- and milk-inspection by laymen officials appointed by local authorities in several cities in this Commonwealth is in violation of the present existing veterinary law? Also, would it be a violation of law or a duly appointed veterinary inspector in the Bureau of Animal Industry, U. S. Department of Agriculture, to engage in the performance of his regular duties in any part of Pennsylvania without first having secured a license or its equivalent from the above-named board? It might be business policy to have this matter brought in proper form before the Attorney-General.

There is another point that is not fully understood yet, viz.: Veterinary college graduates who had practised in Pennsylvania before enactment of any veterinary laws, then entered the government service in legal form, and on duty in other States, or had moved away, or retired from general practice, might desire to return and resume practice, but are not aware whether they are eligible, or will be required to pass the usual examination. These matters ought to be decided by the proper authority, then give us the information through the usual channels and THE JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES.

Respectfully submitted for official action,

JAMES A. WAUGH.

Pittsburg, Pa., July 25, 1897.

AMONG THE COLLEGES.

THE faculty of the Kansas City Veterinary College have made a few changes: George A. Johnson, D.V.M., succeeds Dr. Thomas J. Turner, Control and Eradication of Contagious Diseases; Leslie J. Allen, V. S., succeeds L. Enos Day as Demonstrator of Anatomy; James H. Cock, D.V.S., succeeds C. G. Atherton, D.V.S., as Demonstrator of Histology and Pathology; E. J. Lutz, M.D., Director of Histological and Pathological Laboratories, succeeds Thomas G. Proctor, M.D.; Alphonso L. Hunt, M.D., succeeds George Q. Smith, Ph.D., Demonstrator of Chemistry. The following new names have been added to the teaching staff: Edward P. Schaffter, V. S., Anatomy; W. A. Heck, D.V.M., Physical Diagnosis; R. P. Steddom, V.S., Veterinary Obstetrics, and Hon. Albert A. Dean, National Quarantine.

The National Quarantine Course will give a thorough knowledge of national quarantine laws, and this subject will be covered in a course of six months.

Chairman Williams will find this an opportunity for rest after his State Board Examination.

The fees, which have been heretofore $100, are reduced, making first year $80; second year, $80, and third year, $90. The post-graduate course is $40 instead of $50.

The following text-books are added: Canine Practice, Glass's Müller, and Ophthalmology, Van Mater.

The Faculty of the New York State Veterinary College have added the name of Edward Lockhart More, B.S., Demonstrator of Veterinary Anatomy. Darwin Abbot Morton, B.S., succeeds William Ridgely Orndorff as Instructor in Organic Chemistry. Emile Mounin Chamot's name has been dropped from the list of instructors. Fred. Douglass Smith, Instructor in Analytical Chemistry, and Blin Sill Cushman, Instructor in Quantitative Chemical Analysis, have been added to the list of instructors.

Efforts will be made to have a conference of State Examining Boards at Nashville.

A society of comparative medicine has been organized for the purpose of giving mutual aid in gaining general and special medical knowledge, facility in conducting the exercises of the meetings, and in presenting papers and discussions in a clear and forcible manner before an audience. A fee of $5.00 is required of each student receiving a degree. Two demonstrators in anatomy are appointed each year at a salary of $125. These positions are open to members of the graduating class and to graduates of this college who have shown special proficiency in anatomy. Students who have been one or more years in the college are eligible to appointment as demonstrators.

The Governing Faculty of the American Veterinary College have dropped the name of Charles A. Doremus, M.D., Ph.D. In the Adjunct Faculty, H. B. Ferguson, Ph.G., Phar.D., has been added on. Harry W. Bellman, D.V. S., succeeds Henry Wilson Peter, D.V. S., as House Surgeon, also Roger Twombly succeeds T. Thomas as Assistant House Surgeon.

The following text-books have been added to the list: Chemistry, Bartley's; Toxicology, Robert Friedburg; Surgical Pathology, Wagner; Ophthalmology, Van Mater; Dictionary, Keating; and Botany, Rusby and Jelliffe's Essentials.

The Harvard University have added to their list of instructors, Patrick J. Cronon, M.D.V., Instructor and Assistant Surgeon at Free Clinic. Tuition fees of special students, laboratory course alone, or with other courses, $150 a year. Elective full course, $45; for a half course, $25 a year. Any special student who attends a course of instruction for only a part of the year must pay the full year's fee for the course, except that a student who is liable for the fee of $150 a year is entitled to the same remissions as undergraduates.

The McGill University have added to their list of examiners the names of J. A. Coutre and A. W. Clement. The following text book has been added: *Diseases of the Dog*, by George Müller, translated by A. Glass, V.S.

The Educational Convention at Milwaukee in July discussed the all-important resolution: *Resolved*, That the State should exercise supervision over degree-conferring colleges through some properly constituted tribunal having power to fix a minimum standard of requirements for admission to or graduation from such institutions, and with the right to deprive of the degree-conferring power such institutions not conforming to the standard so prescribed.

Commissioner of Education Harris, referring to the importance of this question, said there were over four hundred degree-conferring colleges in the United States. He thought forty would meet all the requirements. This is a step in the right direction, and there can be none with greater interest in this matter than the veterinary profession, and there should be much interest displayed by the Association of Faculties in helping to arrive at some conclusions that would hasten the accomplishment of the ends arrived at. The boards of veterinary medical examiners in the several States will all bear uniform testimony to the need of this as well as a uniform degree.

McKILLIP VETERINARY COLLEGE.

Faculty: Leo. Thurliman, M.S., Ph.G., Professor of Chemistry and Physics, has succeeded Otto Folin, B.S. E. M. Broecken, V.M.D., Professor of Histology and Microtechnology, has relinquished his connection, and F. S. Schoenleber, M.S.A., D.V.S. Professor of Anatomy and Histology, and I. D. Rawlings, M.S. M.D., Professor of Bacteriology, have been added to fill his place.

Practising Staff: John B. Boomer, M.D.V., Assistant Surgeon and Pharmacist, has succeeded F. C. Leith, M.D.C.

We want to hear more from the association of faculties—referred to Secretary Gill.

Professional visits show a decrease of 321; surgical operations show an increase of 141; dental operations show an increase of 165; hospital patients show a decrease of 210;

hospital patients, less than five days, decrease 795. Total cases treated during 1896 show a decrease of 900 from 1895; total cases treated at hospital during 1896 show a decrease of 829 from 1895.

The bacteriological laboratory is under the direction of I. D. Rawlings, M.S., M.D., Professor of Bacteriology at the Northwestern University Medical School. The instruction in the dissecting-room is conducted by the professor of anatomy, a junior prosector, and a senior demonstrator. The following will conduct the instruction for '97–'98: F. S. Schoenleber, M.S.A., D.V.S., Professor of Anatomy; Fred E. Jones, Junior Prosector, and Henry J. Washburn, Senior Demonstrator.

Examinations: Failure in three branches will disqualify a student for graduation.

Laboratory fee has been dropped, therefore making the expense first year $80, second year $75, third year $85.

Wont some-one spring a paper on the Convention—"The Veterinarian in Politics."

Officers: Clarence Davis has succeeded Ernest H. Brown as Vice-President; also Clyde S. Hess has succeeded Will S. Powell as Recording Secretary and Treasurer of the College Association.

INDIANA VETERINARY COLLEGE.

E. H. Pritchard, V.S., has succeeded T. L. Armstrong as President. H. E. Zimmer, Ph.G., elected Vice-President, and S. E. Crose, A.M., M.D., have been added to the Board. H. R. Macaulay, V.S., and J. T. McShane, M.D., have relinquished their connection as trustees. T. L. Armstrong, D.V.S., J. W. Klotz, V.S., have been added to the Board.

E. H. Pritchard, V.S., has succeeded T. L. Armstrong as Meat and Milk Inspector, and John F. Geis, M.D., has succeeded W. S. Tomlin as Professor of Physiology, and John E. Pritchard, M.D., as Professor of Histology and Microscopic Pathology, will be identified with the Faculty in the coming college year.

Lecturers: Reginald W. Garstang, M.D., has succeeded Jas. E. Dedmon as instructor in General Pathology and Morbid Anatomy. F. C. Becker has succeeded John E. Pritchard in Bacteriology. H. Smock, V.S., has succeeded E. H. Pritchard on Hygienic Breeding and General Management of Domestic Animals. The name of J. T. McShane, M.D., on Microscopic Pathology has been dropped from the list of lecturers.

Much stress is laid on clinical instruction for the coming year.

The college curriculum will be changed to a three-years' course after the session of '97–'98.

Alumni Association have elected the following officers: President, Thos. Gaddes, M.D., V.S.; Vice-President, Joe Creedon, V.S.; Secretary, Louis A. Greiner, V.S.; Treasurer, Ferd. A. Mueller, Ph.G., V.S.; Executive Committee, Samuel Rodybaugh, Charles Gause, Harry Smock, Wilbert Ramsey, and J. B. Heaton.

The objects of this Association are to promote and perpetuate the sentiments of general brotherhood among the graduates, to advance the interests and extend the influence of the Indiana Veterinary College and to encourage a high standard of veterinary education.

BOARDS OF EXAMINERS.

The Virginia State Board of Veterinary Examiners held examinations on the 23d and 24th of June and on July 8, three candidates passing successful examinations, as follows: Dr. B. A. Brown, of Ontario and National Veterinary Colleges; Dr. A. M. Lushington (colored), of the Veterinary Department of the University of Pennsylvania, and Dr. S. C. Simpson, of Ontario College. The board will hold its next regular meeting in Richmond, Va., January 4, 1898.

Dr. David W. Cochran (late lecturer on horseshoeing, American Veterinary College, and a practical horseshoer) with Dr. Quinn (State Examiner of Horseshoers for New York State) were the examiners of students lectured to during the past winter by Drs. Huidekoper and Gill, and the result was very gratifying. Five men received 80 per cent. or better; two men received 70 per cent.; two men received 60 per cent., and two men received 50 per cent. A gold medal was offered by Mr. Goldsticker to the one passing the best examination, and was awarded to Mr. P. B. McSwegan.

What will the Chicagoans present for the program?

Some eight veterinarians entered for examination for appointment in the Bureau of Animal Industry at the civil service examination at Boston on April 26, 1897.

Drs. S. J. Buckley and B. A. Brown successfully passed the examination of the Maryland Board. One applicant failed to pass.

COMMENCEMENT EXERCISES.

VETERINARY DEPARTMENT OF HARVARD UNIVERSITY.

THE graduating exercises of this department were held on June 30th, in conjunction with the closing exercises of the several departments of this time-honored institution. The conferring of the degrees took place in Saunders's Theatre, Cambridge, where the twenty successful candidates for the degree of M.D.V. were presented by Dean Lyman of the Veterinary Department, and their diplomas were presented by President Eliot of the University. The following are the names of the graduates: Frank Jerome Babbitt, Elmer Warren Babson, Clarence Edward Burchstead, Howard Montgomery Burgers, Cornelius Cronon, Frederick Thomas Dolan, Clement Arthur Hamblet, Edward Ambrose Madden, Arthur Winthrop May, William Augustine Nannery, Ellis Peterson, Jr., Charles Herbert Perry, Thomas Joseph Shinkwin, Frank Benjamin Stratton, Berton Amasa Thissell, Pell Fletcher Wallingford, Lewis Cummings Weeks, Daniel George White, William Tisdale White, and Alexander Eames Wight.

The ladies' programme is complete.

SOCIETY PROCEEDINGS.

SYNOPSIS OF MEETING OF VIRGINIA STATE VETERINARY MEDICAL ASSOCIATION.

THE fourth annual meeting was called to order by the President, Dr. George C. Faville, in the office of Dr. W. H. Harbaugh, at Richmond, Va., on Wednesday, June 23, 1897.

After the roll-call the President addressed the Association as follows: "Another year has rolled around, and it becomes your duty to elect those officers who shall have the welfare of your organization in their keeping for one more year.

"The activity displayed during the first two years of our existence as an organization makes the last year seem, by comparison, like a vacation. Considerable has been accomplished by many of our members working in individual lines. Much yet remains undone.

"The professional standing of our Association, and the standing of each member individually, depend upon our professional activity largely, and largely upon our desires. That the educated veterinarian should stand upon the same footing socially, professionally, and every other way is axiomatic.

That in many places he does is a fact; but in Virginia, unfortunately, he too often is placed, by those employing him, upon the same footing as the blacksmith, the old-time horse-doctor, and the charlatan. This is largely due to the veterinarian himself. Too frequently he is wiling to be put upon the lower plane in order to secure the case. Too often he submits to an unworthy competition in order not to make enemies, and too often he is willing to think that when he has his diploma he has all that can be gotten of veterinary knowledge, and is ready to settle down into a jog-trot of professional practice, making no adequate effort to keep up with the procession. To keep in the vanguard requires continued effort. How continual only those who try hard to keep there can tell.

"Much good work has been done during the last year. The work done by our worthy member, Dr. Harbaugh (notwithstanding much sickness), in his researches into the milk-supply of our capital city is an example to the rest of us. His work must result in much good, and command the attention of the whole medical fraternity. The lack of knowledge, worse than all, the lack of the desire for information regarding the milk-supply of our cities, is a surprise to all those who look into the question. Political boards of health and city councils, whose only care is to cater to the wishes of the ward-boss, and who will not look into the merits of the question of proper food-supplies, are a menace to the heathfulness of our cities. There is not a city in our State that does not control the running at large of dogs, because of danger to the health of the public from a largely imaginary trouble—rabies; or which does not compel a careful sanitary inspection of all houses within its limits in order to prevent the propagation of disease, or which does not give its board of health control of many conditions which are deleterious to health; but this one, most important of all—the milk-supply—is not considered, although the most dangerous of all from many considerations. Our Association has accompished much, but much remains to be done."

The report of the Board of Censors recommended the election to membership in the Association of Dr. H. S. Willis, of Rapidan Station, Va., which report was accepted, and Dr. Willis was accordingly elected to membership. The resignations of Drs. Marshall and Dixon, which were tendered on account of their removal from the State, were accepted.

On motion of Dr. Harbaugh, which was seconded and passed, the semi-annual meetings were discontinued for the present. Dr. Harbaugh was also author of the motion that the President appoint two essayists to read papers at the next regular meeting.

After receiving the reports of the committees and transacting other routine business, the election of officers took place, which resulted in the re-election of the following officers: President, Dr. George C. Faville, Norfolk; First Vice-President, Dr. W. T. Gilchrist, Norfolk; Second Vice-President, Dr. Charles McCulloch, Howardsville; Secretary, Dr. Thomas M. Sweeny, Richmond; Treasurer, Dr. A. J. Burkholder, Staunton. The President appointed as members of the Board of Censors, Drs. Harbaugh, Roop, Willis, Drake, and Niles. Committee on Statistics, Drs. Harbaugh (chairman), Gilchrist, and Roop. Committee on Jurisprudence and Legislation, Drs. Harbaugh (chairman), Niles, and Sweeny.

Remember the dates, 7th, 8th, and 9th of September.

The afternoon was devoted to the reading and discussion of reports of cases, after which the Association adjourned to meet in Norfolk on the fourth Wednesday of June, 1898.

THOMAS M. SWEENY,
Secretary.

REPORT OF THE COMMITTEE ON STATISTICS.

You will observe that as Chairman of this committee I have the same complaint to make as my predecessor. I cannot understand why members neglect to send in notes upon such an important matter when the benefits are mutual.

Dr. E. P. Niles, State Veterinarian, sends the following report, which I include without change.

"Pursuant to your call for notes on contagious epizootic and enzootic diseases, I beg to submit the following:

"Since the last report of your committee I have observed encephalitis in various parts of the State. This is a disease which gives rise to many 'mad-dog' scares, and I have seen it in horses, mules, cattle, and dogs. Last September the disease was prevalent in Northampton County among mules and horses. The symptoms vary somewhat in the different animals and even in animals of the same species. In the horse and mule, in cases which have come under my observation, the 'rabid' symptoms have been less marked than in cattle and dogs. The temperature has remained nearly normal; appetite not impaired, at least in the early stage of the disease, the animal showing a desire to partake of food and water, but unable to do so on account of the paralysis of the muscles of the throat. In the case of a mule to which my attention was called, the paralysis of the throat was, at that time, the only symptom of disease. Cattle usually become very excitable, and frequently vicious, attacking anything which may come in their way, especially dogs. At first the symptoms are mild, and to the ordinary observer not well defined, but upon examination it is noticed that the animal shows a peculiar indifference to its surroundings, there is a characteristic staring appearance of the eyes, and, owing to the partial or complete paralysis of the throat, the saliva dribbles from the mouth. As the disease advances the animal becomes more easily excited, and if not confined may wander about in an aimless manner, frequently stopping and bellowing for several minutes at a time; if other animals come its way it makes a vicious charge upon them. In advanced stages of the disease the spinal cord may also be involved, causing partial and sometimes total paralysis of the extremities, manifested by a staggering gait or inability to stand. The true cause of this disease seems not to be well understood. I am of the opinion, however, that it is an infectious disease due to a fungus. In one outbreak, which I have investigated, the disease was confined to a certain valley through which a stream of water ran. On this stream of water are located several sawmills, the sawdust from which is thrown into the stream. I am of the opinion that the decaying sawdust in this stream had something to do in the causation of the disease in this instance.

Boston wants the meeting in 1898.

"Canine distemper has been more prevalent in this section of the State during the past two months than at any time since I have resided here. Some of the cases are of a very mild nature, while others are very severe.

"Enzoötic pharyngitis made its appearance in this section during the spring for the first time; several cases have been brought to the clinics held by Dr. Roop at the college veterinary hospital. The most of such cases have yielded very promptly to treatment, complications arising only in one case. In that case it became necessary to trephine the inferior maxillary sinus to remove the pus which had collected there.

Distemper has also been prevalent during the past three months in a much more severe form than usual.

"A few cases of black-leg have also been reported. This disease has, however, been confined to a very limited area.

"Splenetic or Texas cattle-fever prevailed in certain sections of the State during last summer, but since the quarantine rules and regulations have been in force but two outbreaks of the disease occurred above the quarantine line."

I am pleased to announce that Dr Niles has succeeded in having a Board of Health established in the town of Blacksburg, consisting of one veterinarian and two physicians. He also induced the town council to pass an ordinance, which is now in force, requiring meat- and milk-inspection for the town, this being the first and only place in the State having such a law.

Dr. H. Bannister, of Roanoke, reports as follows:

"During the year past I have had considerable of a sort of meningitis that appears to be infectious to some extent; it has occurred mostly in cows, calves, and some in dogs. The symptoms in the main are identical, excepting that in adult cattle there appears to be more violence than in either dogs or calves. Treatment has, in my practice, been of no avail, death usually occurring in from thirty-six to forty-eight hours. I have seen but two recoveries, both in cattle, one a four-year-old Jersey, and the other a yearling. The cow was given small doses (ʒij) of chloral hydrate, and the heifer got no treatment.

"A very mild form of pharyngitis has been very prevalent this year, requiring very little treatment, and, beyond the annoyance of incessant coughing, giving no trouble.

"Strangles in light form has occurred as it usually does."

Dr. H. S. Drake, of Leesburg, sends a very important report, and I fail to see how we can overlook some parts of it. There can be no question that the Association should investigate as he suggests. His report is as follows:

"Tuberculosis is prevalent in every dairy of the county to a greater or less degree. Nothing is being done to check its spread, except in some one or two instances where I have examined by physical means, in order to destroy or remove all diseased cattle before new ones are brought in for renewing the dairy. Others have been warned, but no notice is being taken of the law. Many do not know that there is any danger. I do not think that the medical doctors are giving warning to their patrons, as I know of the supply for babies being furnished from cows that have been diseaed for some years, and the M.D.'s of the town are surely aware of the existence of the disease.

Special railroad rates from all the large cities.

"Osteoporosis has been observed in a number of horses boarding at Oak Hill Farm, that are natives of Pennsylvania, near Philadelphia. They were diseased when brought here about one year ago. Some have died, and others were destroyed at my instigation, where fractures existed. I now have two geldings, three years old, and two brood-mares under observation. Notes as follows: September 17, 1895, two colts, sorrel and black, two years old. Enlargement of superior maxillary in both very bad. Gait retarded and stiff, otherwise in good condition. Emasculation standing. Both did well. I was informed by Mr. A. (owner) that the animals were getting much better, as the enlargement is scarcely perceptible to ordinary observers. I saw them on May 26, 1897, and would not have believed there could be such a change in so short a time, and without treatment. Their movement is free, and with a new vigor of life, as is clearly demonstrated by their ability to kick and jump. The two brood-mares, as stated by Mr. F., lost their foals before coming to his farm, and they are perceptibly diseased, but have by their side two fine foals as ever grew, and apparently sound at this writing. I hope to get a full history of the mares, and to keep track of their offspring as developed, and note results for further reference.

The South summons YOU to their support.

"My attention has been called at different periods to fistulæ of withers and poll existing among so many horses of all classes and types. I wish to bring before the profession the advisability of investigation by the able professional staff of our State institute. It is causing the loss of many valuable animals in this and adjoining counties. It is more prevalent on the dairy-farms of this county and among young, unbroken colts. All cases can be traced to there having been some affected animal on the premises before the outbreak, and in many places every animal has been affected at different periods of time, and when all horses have been removed from the farm, and a new tenant comes with stock free from any such disease, in four to six months there will be from one to three animals showing swelling either of withers or poll. As to forms, I have noted that one may be classed as a fibrous enlargement, the other of sero-purulent type, which, in my experience, is the more common, and I believe it to be of a contagious or infectious nature, while the fibrous form I do not consider to be so. The fibrous form has a number of ducts, while the other form has but a single duct connecting directly with the spinous processes or the shoulder and its integuments."

In Richmond and vicinity during the past year, muscular rheumatism has prevailed to more than the average extent.

Pharyngitis among horses, which first made its appearance here several years ago in a mild form, now appears in many instances as a malignant disease, and, in fact, all cases of it require closer attention than formerly.

About the average number of cases of tetanus have occurred.

The nervous form of distemper in the dog has caused a large death-rate.

Encephalitis of cattle seems to have moved to the western part of the State. I was called to attend a few isolated cases during the year, but I heard of no outbreak of any importance, such as we had a few years ago.

Respectfully,

W. H. HARBAUGH,
Chairman.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

THE third annual meeting was held in Kansas City, Mo., July 9, 1897. The meeting was called to order by the President, Dr. Stewart. The Secretary, Dr. Hunter, being absent, Dr. Schaffter was elected Secretary *pro tem.* The first order of business was roll-call, the following members responding: Drs. Stewart, Moore, Bray, and Schaffter. Members of the profession present were Drs. Heck, Steddom, and Johnson. The minutes of the February meeting were read and approved. Correspondence between the Secretary and Dr. T. J. Turner was read, which requested his release from the Association on account of his inability to attend meetings, being located at Indianapolis. Upon motion, duly seconded, Dr. Turner's resignation was accepted. Applications for membership were made by Drs. Heck, Steddom, and Johnson. The Board of Censors reported favorably upon the petitions, and upon motion, duly seconded, they were declared members. The President was authorized to appoint delegates to the U. S. V. M. A. meeting, which will be held at Nashville, Tenn.

A paper was read by Dr. Moore: "Sub-puncturing for Gastric Flatulence." The subject elicited a full discussion by all present. Dr. Bray volunteered a little talk on uses and abuses of actual cautery. The discussion following brought out many interesting and valuable points.

Election of officers resulted as follows: Dr. Hunter, President; Dr. Moore, Vice-President; Dr. McCurdy, Second Vice-President; Dr. Schaffter, Secretary and Treasurer; Censors, Drs. Bray, Heck, Steddom, Johnson, and Harrison. Meeting adjourned to meet with October regular meeting.

E. P. SCHAFFTER, V.S.,
Secretary pro tem.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

THE regular semi-annual meeting was held at the Court House in Owatonna on July 13th and 14th. The meeting was called to order by President Brimhall on the evening of July 13th. The following gentlemen were present: Drs. C. C. Lyford, M. H. Reynolds, N. S. Erb, J. P. Anderson, S. D. Brimhall, L. Hay, S. H. Ward, A. Youngberg, K. J. McKenzie, A. Dallimore, E. N. Chute, G. McGillivray, J. N. Gould, J. W. Gould, J. H. Dietz, W. Amos, and Dr. Schoenleber, of Chicago. The Secretary's and Treasurer's report read and adopted.

Dr. Reynolds, Chairman of the Committee on Infectious Diseases, presented a lengthy report, dealing with infectious diseases (hog-cholera, tuberculosis, and glanders) in the State, suggesting means of eradication. Several members urged the necessity of providing some means of compensating owners of glandered horses ordered killed by the boards of health. Dr. Brimhall related some of his experiences dealing with glandered horses, and told pitiful stories of circumstances surrounding poor owners of horses killed. Dr. Amos thought compensation would be an incentive to owners to have their animals tested and destroyed, rather than trade them off, thus preventing the chief means of spreading the disease. Dr. Schoenleber also made some valuable suggestions on dealing with infectious diseases.

The programme will interest all.

Election of new members then took place, and Drs. W. Amos, J. N. Gould, and G. McGillivray were admitted as members of the Association.

Moved and seconded that the meeting adjourn; carried.

On July 14th the meeting was called to order at 8 A.M., by the President, and Dr. Youngberg, of Lake Park, read a very interesting paper on "Malignant Catarrh of the Ox." This was followed by a lively discussion, which brought out the fact that the disease is quite as prevalent in the southern part of the State as in the northern, Dr. Amos reporting a number of cases about Owatonna. Dr. Amos presented some excellent specimens of tuberculosis, which were carefully discussed. Dr. Reynolds spoke briefly of legislative effort to control tuberculosis. Dr. Brimhall, of Minneapolis, gave a short talk on intra-laryngeal injections of bitter-almond water and morphia in cases of acute and chronic cough. The meeting then adjourned till 1 P.M., when Dr. Lyford, of Minneapolis, exhibited specimens of horses' feet, and gave a demonstration of his way of operating for contracted feet. The meeting then adjourned to Dr. Amos's office, where Dr. S. H. Ward, of St. Cloud, read a paper on "Specific Cures for Certain Diseases," an amusing *résumé* of remedies recommended to him by horse-owners and would-be veterinarians. Dr. Reynolds gave a practical demonstration of his way of performing "Ovariotomy on a Bitch," and Dr. Brimhall conducted a clinical diagnosis of an obscure case of lameness.

The railroad rates in the East are in your favor.

A vote of thanks was tendered Dr. Amos for courtesies extended and assistance in making the meeting a successful one, and after deciding to hold the next semi-annual meeting at the Experimental Farm, St. Anthony Park, St. Paul, the session adjourned.

L. HAY, V.S.,
Secretary.

THE NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION

Will hold a meeting at Charlotte on August 24, 1897. A generous welcome will be extended to all visiting veterinarians and any who may be sojourning toward Nashville, or through the South, to stop at Charlotte and attend this gathering.

THE PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION

Will meet on September 21, 1897, at Franklin. They will be welcomed by Mayor George B. Jobson, one of their Vice-Presidents, and accorded the freedom of the city. Franklin is the centre of one of the most thrifty sections of our State. All the adjacent counties have many progressive towns, where are located good, active, earnest members of the profession who should be in the State organization, and the visit of the Association should accomplish much in this direction.

The meeting will be held in one of the best halls in the city, and the attractions adjacent to Franklin are such as to invite a large attendance from the eastern part of the State.

President Rayner in his annual address will present many interesting points of the early history of the veterinary profession in Pennsylvania, of the schools that were early in the field in Philadelphia and Burlington, N. J.

Drs. Leonard Pearson, W. S. McCray, George B. Jobson, Jr., Otto G. Noack, and W. Horace Hoskins have promised to contribute papers for this meeting.

Veterinarians from Ohio and Southwestern New York will be very welcome to attend and take part in the convention's proceedings.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THE final meeting for the session of 1896–97 was held in Room No. 1, third floor, N. W. corner of Broad and Filbert Sts., Tuesday evening, June 8th. The meeting was called to order by Dr. James B. Rayner, with the following members of the profession present: Drs. Drake, S. H. Johnson, A. Jolly, of Atlanta, Ga.; W. H. Hoskins, F. S. Allen, H. P. Eves, W. L. Hart, James B. Rayner, W. L. Rhoads.

Dr. W. Horace Hoskins, as Chairman of the Committee on Legislation, spoke of a bill to prevent the introduction of cattle unless accompanied by a free bill of tuberculosis, having passed both houses and now only awaits the Governor's signature to become a law. The bill reported at last meeting, which will tax all carcasses coming into the State and establish a number of meat-inspectors along our border-lines, has passed the House and is having a hard time of it. The bill to reopen registration met the fate which it merited, and did not emerge from the committee-room. It was now explained why the great decrease in the State's income had limited to a great extent the work of the State Veterinary Sanitary Board and all similar work for a time. The advisability of the veterinarian helping to procure bicycle paths through Fairmount Park, and thus encourage the driving public, was discussed.

It was then moved and seconded that the Association enter upon the discussion of "Lameness." Dr. Thomas B. Rayner had been designated as the one to open the discussion. He being absent, this duty devolved upon Dr. H. P. Eves. He spoke of the many trials and troubles we encounter in diagnosticating, seldom finding the same symptoms indicative of the same seat of trouble, and told of the benefit to be derived at times from the use of cocaine in cases where the effect might be plainly apparent while the lesions were obscure. He felt that much of our lameness was due to osteoporosis, in which theory he was upheld by nearly all of those present.

Dr. Jolly, of Atlanta, Ga , was now called upon. During the course of his remarks he spoke of a family of about thirty-five or forty horses in his vicinity, which always show a rigidity of gait, going this way probably for years, then while driving or at work they suddenly break into profuse perspiration, go down, and in a short time die. Considerable discussion followed as to the cause. Dr. Pearson spoke of one of the great show-stallions siring a number of colts which developed osteoporosis. Yet many things seem to indicate that it is infectious. Dr. Drake had seventeen cases in one stable within two years, and we find many instances of this kind regardless of location, environment, breed, or work. Dr. Pearson said it is barely possible that its cause may be a minute parasite, as in Texas fever, roup, cancer, etc., yet it is unknown in England or in Germany. The treatment suggested was lime in its various forms. Bone-meal ground to an impalpable powder (it should first be burned, as by this process you get rid of all organic substances; it must then be specially ground).

From New York to Nashville without change of cars.

Dr. Eves asked why a blind horse invariably had a remarkably slick coat in the winter and a rough appearance in summer. He had often noticed it, but had never found a satisfactory explanation. Can any of our professional brothers answer, or have they, like most of those present, been going around with their eyes shut? Thus ended what has been to the members of the K. V. M. A. and their professional friends (who were enough interested in the advancement of the profession to attend the meetings which are at all times open to them) one of the most interesting and instructive sessions ever known in its history. The subjects of the half-hour talks were widely diversified, thus making it a post-graduate course, as it were, well worth the time of any progressive practitioner to attend. And the course here as elsewhere shall improve year by year. We feel that, with the exception of the great loss sustained by the death of our beloved President, Dr. John R. Hart, we have had a year of marked progression—a progression which was largely due to his indefatigable energy and efforts, and we hope to make the meetings more entertaining, more instructive, and more forcible year by year, so that each speaker or invited guest may feel, as one of our speakers expressed himself during the past session, when he said he "considered it an honor to have the privilege of addressing the K. V. M. A., the oldest local veterinary medical association in continuous existence, also the most——" but, being Secretary of the Association, modesty forbids my quoting too closely his remarks on this topic.

Welcome all to our 34th annual convention.

Adjourned to meet September 14, 1897.

W. L. Rhoads,
Secretary.

AMONG THOSE YOU KNOW.

Lawson N. Fuller, seventy-five years old, drove eight horses a full mile over Fleetwood Track in 3.18¼; six-in-hand in 2.58. These horses were all bred, raised, and trained by Mr. Fuller.

Dr. Jackson has given up practice in New York City and taken a position to manage a stock-farm near Albany.

Charles F. Spies, V.S., has located at Bayonne, N. J.

T. E. Smith, V.S., has located at No. 309 Barrow Street, Jersey City, N. J.

Dr. Abel, of the Bureau of Animal Industry, has been transferred from Buffalo to Brooklyn; Dr. Murphy from Brooklyn to New York (east-side abattoirs); Dr. L. P. Cook from east-side abattoirs to west-side; Dr. E. L. Volgenau from New York City to Buffalo.

Dr. Huidekoper and his wife are at Newport. Mrs. Huidekoper is doing well.

Dr. D. W. Cochran has been on a visit to Toronto, calling at Prof. Smith's, also at Drs. Hinkley and Claris's at Buffalo on his way returning.

Dr. Thomas Giffin has for some time been affected with threatened locomotor ataxia. On the recovery of his wife, the doctor and his family leave for the mountains.

Drs. Heard, O'Shea, and J. S. Cattanach will spend the summer at Newport; Drs. C. C. Cattanach and Dickson at Long Branch.

Dr. A. J. Sheldon, of Boston, Mass., was one of the applicants before the civil service commission in April last.

Dr. H. B. Adair is now located at Nogales, Arizona, as assistant inspector of the Bureau of Animal Industry along the Texas-fever quarantine line.

Dr. W. C. Rayen, of Nashville, Tenn., of the quarantine department of the Bureau of Animal Industry, has been changed to the meat-inspection department, and directed to report at Chicago, September 15th.

Dr. Fred. de M. Bertram, former house-surgeon of the Veterinary Department of the University of Pennsylvania, has gone to Newport, R. I., for a summer location in practice.

Veterinarian J. F. Deadman's wife, of Sault Ste. Marie, Mich., gave birth to three healthy boys early in July.

Dr. Charles A. Schauffler fills the *rôle* of veterinarian to the Woman's Branch of the Society for the Prevention of Cruelty to Animals in the up-town district of Philadelphia.

Dr. Wm. G. Shaw, house-surgeon Veterinary Department of the University of Pennsylvania, was a visitor to Pittsburg early in July.

Dr. Alex. Glass, of Philadelphia, fills the *rôle* of official photographer of the Corinthian Yacht Club, of which he is an ardent devotee, and with true nautical devotion pilots his many friends into all the creeks and coves of the beautiful Delaware River in his naphtha launch, "Corona."

See if the railroad does not favor you.

Dr. W. W. Phipps, of Lionville, Chester Co., Pa., has been selected a starting judge of the Downingtown Driving Association.

Dr. F. Rawson, of Lawton, Mich., takes much interest in the breeding of collie dogs.

Dr. Leonard Pearson was a visitor to Boston in July, and spent some hours at the Deer Foot Farms.

Dr. C. E. Stewart, of Chariton, Iowa, holds the position of Assistant State Veterinarian.

Dr. John C. Stewart, of Danville, Ill., fills the *rôle* of Assistant State Veterinarian for his district.

Have you sent in an application for membership?

Dr. Walter L. Hart, of Philadelphia, has received the appointment of City Veterinarian. He for many years assisted his brother, the late Dr. John R. Hart. Dr. Walter L. Hart is a graduate of the American Veterinary College. He is well equipped for the position, and will no doubt fill it with increasing benefit to the profession and credit to himself.

Dr. A. N. Lushington, of Philadelphia, successfully passed the examination of the Virginia State Board of Veterinary Medical Examiners.

Dr. E. F. McLean, of Cincinnati, the noted turfman, died suddenly on July 29th, from heart-disease, at the Oakley running track.

Dr. M. R. Trumbower, of Sterling, Ill., has gone to Colorado temporarily, hoping thereby to benefit his wife's health.

Dr. John W. Connoway, of Columbia, Mo., was a recent visitor to Kansas City, securing material while there for the further study of Texas-fever.

Dr. J. C. Norton, Territorial Veterinarian for Arizona, recently visited the national capital and many of the large cattle-markets in the interests of the Arizona Cattle Commission.

Dr. Charles T. Goentner, of Bryn Mawr, Pa., is seriously ill from the combined injury by a horse-kick in the jaw, causing a tetanic condition of the latter, and a prior condition of threatened appendicitis, for which he was being treated when he received the above injury.

Dr. J. A. Pearson, of Philadelphia, has opened an infirmary in conjunction with his private practice.

Dr. W. J. Hinman represented the Manitoba Horse Breeders' Association at the Winnipeg Industrial Exhibition Association in July.

James E. Duncan, V.S., has taken a medical course, and is now practising human medicine and surgery in Pittsburg, Pa.

Dr. William R. Howe, of Dayton, Ohio, is working hard for the establishment of meat- and milk-inspection in that city.

Dr. M. J. Henderson, of Syracuse, N. Y., was one of the judges on the stand at the recent races at Kirk Park, where the stallion Bel Bel died from exhaustion after being denied the privilege of being withdrawn.

Dr. R. S. Huidekoper, of Newport, R. I., has been selected by the fashionable patrons of that famous resort as the promoter of a dog-show to be held in August. It will be held on a site near the Casino.

Veterinarian H. C. Moore, of Albany, N. Y., is summering at the "Plaza" at Asbury Park, N. J.

Dr. R. S. Huidekoper is Secretary-Treasurer of the Bull Terrier Club of America.

Drs. Huidekoper, Pearson, Trumbower, Sherwood, Peters, and Roberts have been appointed by the American Kennel Club as an advisory committee to procure statistics and report on the subject of rabies in America.

Thomas J. Cooper, V.S., who recently located at Paterson, N. J., has been seriously ill, but is now on the way to recovery.

THINGS AND CONDITIONS ARE EVER CHANGING.

The Lancashire Veterinary Medical Association of England recently passed resolutions that "docking" was a necessary operation.

The London *Live Stock Journal*, in one of its July issues, takes cognizance of the dangers arising from the appointment of a non-graduate State Veterinarian in Illinois. How about Michigan?

"Veterinary Consulting Rooms" is the significant heading of an Eastern veterinarian's office stationery.

Philadelphians can reach Nashville in 36 hours. New Yorkers in 38 hours.

Six veterinarians attended the great race-horse, "Domino," in his fatal illness from meningitis, at Lexington, Ky.

The Tennessee papers already announce our coming by publicity given to the names of those who expect to read papers, as well as the subjects which they will treat of.

There will be no section of our country without representation at Nashville.

The determination to return to the breeding of Morgan horses by the Illinois College of Agriculture will be watched with much interest. Certain families of this well-known breed were among the best all-round horses ever owned in America.

A western city of Pennsylvania is again being placarded by one of her veterinarians with posters 14 x 20 as a hoped-for method of increasing business.

Lincoln has again started the horse-abattoir, which doubtless means the destruction of many cayuses.

GLEANINGS.

Vermont is considering a proposition made by Dr. Seward Webb, the famous hackney-breeder, to bond the State in raising a sufficient sum of money to build improved roads through the three valleys traversing the length of the State from north to south. It will prove the best investment the State has ever made, making her fertile hills and valleys so accessible through intersecting good roads that she may well hope to win back a goodly portion of the thirty or more millions of dollars that her farms alone have shrunk in the last twenty-five years.

Picric acid in burns and scalds may be used as a powder sprinkled on the affected surfaces, or compresses saturated with a solution of the acid. Bathing the parts with a solution every few hours gives great relief where the pain is marked. Two drachms to a quart of water make a saturated solution ; an ounce of alcohol to a quart of water increases the solubility; vaseline on the hands will prevent staining of the latter when using. Blisters should be punctured, not incised, to promote healing more rapidly.—*Therapeutic Gazette.*

The Attorney-General of New York State has decided that the State Board of Health has no power to prohibit the importation of cattle into the State, to quarantine them, or to require the tuberculin-test to be applied to such cattle; holding that such powers must be legislative in character.

The dipping-vats for sheep in the larger stock-yards promise fruitful results from the losses entailed in this direction, and proper disinfection of the cars will be a long step toward the better control of "scab."

The sheep-dipping-vat at Chicago is some ninety-four feet long, the tobacco solution being used is maintained at a temperature of 120°. About one thousand sheep can be dipped hourly. A charge of three cents per head is made, and all sheep for export must be dipped and carry with them a certificate of the same.

Twenty thousand sheep were recently condemned at the port of entry, Marseilles, France, suffering from a disease unfitting them for food.

There are many applicants for the veterinary chair in the Kansas Agricultural College recently made vacant by the action of a Populistic Board of Regents.

Hooven, or bloating, among sheep, when fed too much rape, is said to yield readily to the use of ammonia spirits given by drench in water. The use of the trocar and canula in very great distention yields prompt results.

A practical hog-breeder recommends the actual cautery along the loins and back for those cases of loss of power of the hind-quarters and dragging of these parts.

The *Veterinary Record* quotes Herr Gmeiner, veterinary surgeon of Coburg, as suggesting the following treatment for grease: Free the limb of all diseased products by means of hot water thrown on with force by aid of a syringe, then dry the skin with cotton-wool or tow; then apply pledgets soaked with ordinary turpentine in regular layers, and maintain in position with a bandage, repeating daily, or every other day, as indicated, washing so long as the uncleanliness exists.

An excellent programme greets you Sept. 7th, 8th, and 9th.

The death of a valuable horse and the illness of a number of other horses and mules from eating improperly cured pea-vine hay is reported by Dr. W. H. Dalrymple, of Louisiana.

An English cattle-owner hopes to see the day when it wlil be compulsory to brand cows that have aborted their calves.

A correspondent reports a capped elbow with extensive granulations very much aided in recovery by being placed in slings after being operated upon.

Ascites in a spaniel dog showing no improvement after tapping and internal treatment, an opening in the abdominal cavity was made, a weak solution of carbolic acid and glycerine used for washing out the cavity, with drainage-tube inserted, but death followed some five days later.

We will meet you at Nashville—a safe trip to you.

The deposit of ova by the beef bot-fly and the development of warbles or maggots along the spinal region may be treated by having these parts smeared with an ointment of one part of carbolic acid and twenty-five of lard, or a solution of train-oil and black sulphur applied twice in a season is said to be a good precautionary measure.

Veterinarian Butters, of England, recommends careful applications of a liniment of equal parts of carbolic acid, linseed-oil, and spirits of turpentine for the removal of loose folds of skin after operation for removal of capped elbows and in similar conditions of capped hocks when non-inflammatory in character.

Dr. M. E. Knowles, of Montana, reports the spaying of thirty fillies without a single loss. He believes this to be one of the best solutions for controlling the overproduction of horses in the range country.

N. V. Gueorguivsky, a Russian military surgeon, strongly recommends compresses dipped in chemically-pure 2 per cent. solution of bicarbonate of soda for arresting the production of pus and control of inflammation, as superior to the antiseptic agents usually employed, such as carbolic acid solution or iodoform, etc.—*Therapeutic Gazette.*

Dogs are rendered insensible to pain by injecting hypodermatically the following: Morphia hydrochlorat, gr. 1; aqua destil., 2 c.c.; and at seat of incision, 3 c.c. of a 2 per cent. solution of cocaine. After finishing the operation, to counteract the morphia, inject atropia, 1 mgm.; aqua, 2 c.c.

For skin eruptions and ear canker in the dog, ichthyol and glycerin, equal parts, or ichthyol 1 part, alcohol (95 per cent.) 10 parts, and water 10 parts.

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THE TYPHOID SERUM-DIAGNOSIS.*

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IN May, 1896, Dr. R. Pfeiffer[1] wrote as follows: "In zahlreichen Arbeiter habe ich den Nachweis geführt dass in dem Blute der gegen Cholera und Typhus immunierten Menchen und Tiere spezifisches Schutzstoffe entstehen" und "Wahrend unter dem Einfluss dieser Antiköper die Cholera und Typhusbacillien im Tier organismen einer rapiden Auflösung anheimfallen." In these statements there is indicated some of the most interesting physiological features of these minute plants. At the same time there is given a concise statement of the bases of the present theory of immunity.

During the past four years bacteriological literature is almost occupied by the various studied phases of this subject, and the amount of original investigation recorded in French and German alone is astonishingly extensive. While the separate discoveries are not flashed upon the world with the marked brilliancy and popularity of an x-ray, yet the growth is piece by piece and connectedly coördinate, and it may be doubted that any other field of work has ever, in like time, been as productive of benefits to mankind. Among the workers are Behring, Yersin, Loeffler, Gruber, Achard, Pfuhl, Kolle, Stern, Pfeiffer, and Widal. Simply a list of their labors would constitute a bibliography so long as to be tiresome. But from them all it grows each day more sure that medicine, surgery, hygiene, and sanitation are soon to be lifted upon a plane of exact science, raised there through labors more exacting and abstruse in detail than the world at large can appreciate.

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* Presented to the Section of Botany of the American Association of Agricultural Colleges and Experiment Stations, Minneapolis Meeting, July, 1897.

A late acquisition of knowledge is found in the facts at the basis of the so-called serum-diagnosis. If all living bacteriologists were alone accredited with but the unearthing of the facts embodied in the two quotations from Pfeiffer, it could but be agreed that the world would be much their debtor; for, as science is superior in thought to practice, so is human life superior to all other considerations.

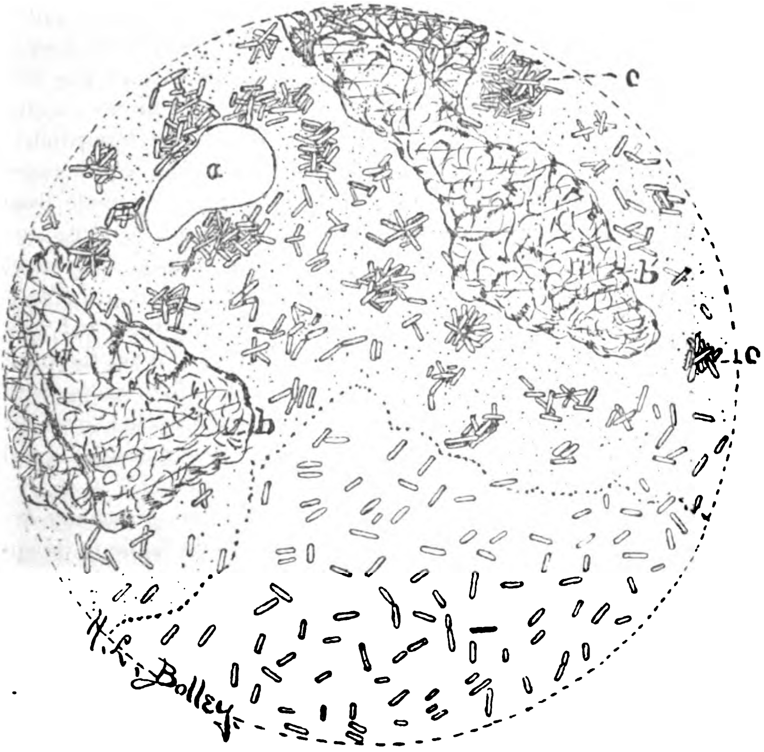
In July, 1896, at a meeting of the Société Médicale, Widal[2] cited a short method of diagnosing typhoid fever by observing the clearing action of blood-serum upon a living bouillon-culture of B. typhi-abdominalis. Later[3] (see *La Semaine Medicale*, October, 1896, p. 410) he simplified the method so that a rapid microscopical diagnosis became possible. This was recognized as being of the utmost importance, and the literature of the subject is already so extensive that this note, except, perhaps, for some individual features of observation, seems almost superfluous. The work, also, at first sight, seems hardly botanical, but the physiology of this parasitically inclined saphrophyte is accountable for the characteristics of the disease and for the features of immunity, and of itself is none the less within the field of plant-activity, instructive and interesting.

The Widal test is conducted in various ways, but in all cases depends upon the effects of typhoid-affected serum upon the specific bacilli; and, for those who have been fortunate enough to do comparative work upon this subject, it seems to me that the bugbear of bacteriological transformation of species must be forever relegated. It becomes evident that B. abdominalis is B. abdominalis, and B. coli communis is B. coli communis, etc. If to a living culture of either of these bacilli blood-serum is added from a patient sick of either, the reaction is specific only for the one causing the illness. In essential, the reaction consists in an almost immediate active clearing of the culture due to the paralysis and clumping "agglutination"—"zusammenballen," or "haufchenbildung" of the previously free-swimming bacilli. This may be studied in an ordinary microscopical manner by the hanging-drop method, and presents some interesting features for chemico-botanical studies, besides allowing for an instant diagnosis for the disease which doctors have always been compelled to allow to run too long upon surmises based upon supposed typical clinical features.

It is not in place to give a *résumé* of the work pro and con on the effectiveness of the test. The work of Pfeiffer and Kolle[4] is alone sufficient to show its value against all apparent exceptions. My own work has also been sufficient to allow me to feel assured that a skilled bacteriologist and microscopist need seldom, if ever, fail upon typical cases. Complications of disease are not part of this question.

ORIGINAL WORK. During the past winter and spring I have conducted studies upon four phases of this subject: first, characteristic effects of typhoid-serum upon the bacilli; second, variations in condition, as affecting the reaction; third, the use of the reaction in water-analysis; fourth, the source of reaction-serum for the last purpose.

The accompanying drawing representing a microscopic field will show at a glance the idea of a typical reaction by the dry-blood



method. Every worker must find for himself the way in which he can be accurate. My method of diagnosis has been a modification of the hanging-drop method. Three drops of blood have been so placed upon the glass slip as to make raised prominences upon which the cover-glass rested, the drop of bouillon-culture (twenty-four to forty-eight hours old) filling the remaining space; *b* and *b′* in the drawing represent patches of such blood-masses. As the active inhibitory substance within the blood-serum penetrates the liquid which surrounds the blood-blotches, as shown by the stippled area of the drawing, a peculiar influence dominates the action of each bacillus as it is seen to swim into the field of serum. Often they strike it with an apparent shock, slow up and become irregular in their course, revolve a few times about one end, as though stuck to something slimy, then lie paralyzed. Others swimming along more evenly and forcibly strike upon the still body of another bacillus, as though attracted to it, and are then stranded there like driftwood. The result is a speedy clearing of the field from free-swimming germs (compare the upper and lower halves of the drawing) and a clumping of completely paralyzed ones as seen at *c*. In case of intense reaction, bacilli swim into the field of serum-influence, stop as though by a shock, spin around on the centre of their axes with great rapidity, and then are immediately stilled. To me, though quite beyond words, nothing can be much more specific than a typical reaction, if observation is made from the beginning. The constant occurrence of the fever in Fargo has allowed me a sufficient number of cases for verification. In nineteen clinically well-marked cases first studied, eleven gave positive results, two were doubtfully weak but afterward reacted well, five failed and the early convalescence seemed to confirm the tests, one failed, though the patient remained very ill. The reaction with B. coli communis for this case, though not very emphatic, was yet quite paralyzing in its effects; hence, here was a case in real doubt.

The modifications of this direct diagnosis by the microscope are various, but it is shown by Pfeiffer and Kolle to be liable to deceptive errors. The method most in use by German investigators is accomplished by drawing from five to ten cubic centimetres of blood from the patient, then allowing the serum to settle out. The serum is applied to the bouillon-culture in bulk, using about one part to ten of the culture. The culture in the test-tube gradually clears in from six to eight hours, and the bacilli are then found to be precipitated in small clumps, "kugelchen" or "haufchen." Pfeiffer[5], however, contends that the most delicate and reliable test consists in making interabdominal injections of sero-cultural mixture. Twenty minutes after such an injection it is found that the bacilli in the interabdominal fluids have undergone "Auflosung." This is beyond the work of ordinary investigators, but is of great interest, in this connection, in the wonderful activity indicated in the rapid dissolution of the organisms.

As in the action of all natural law, the reaction is found by different observers to vary greatly according to conditions; hence many chances for error arise, and there is much opportunity for side investigations. Among the features which have come under my own observation are those of virulence and attenuation, age of the culture, liquid condition of the culture, acidity or alkalinity of the culture, and the age and condition of the blood-serum. Observed results upon these features are confirmatory of those made by many others. Each of these features, varied from what may be termed the normal results in some variation of the reaction; thus, I failed to get the reaction upon a culture direct from the spleen of a guinea-pig, except in the most marked cases, while an old culture attenuated through many transfers was found very delicate under the same conditions. The culture must, of course, be in a motile condition to give the results characteristic of the hanging-drop, inasmuch as the attendant effects upon the movement of individual germs and certain features of the clumping is dependent upon this condition. This demands a liquid culture, for the power of free swimming is developed only in such. The age of the culture is important for less obvious reasons, though loss of the characteristic motion of the free-swimming bacilli is here also the most evident and confusing feature. Bacilli from a liquid culture several days old seem also to have acquired a sort of immunity to the paralyzing action of the serum, and lie in a semi-motile condition many minutes in the strongest type of serum, complete paralysis not occurring as in the active fresh cultures. This would be easily explained could it be proved that the substance formed by them in culture is identical to that which is formed by them in the animal body. Pfeiffer,[6] however, claims that the protective substance formed is not a chemical unity, but that, at least, two different substances are formed through the direct incorporation of the body-substance of the bacilli.

I obtained negative results with cultures grown in Parietti's bouillon, potato-broth, and in other acid cultures, but positive reactions with neutral or properly alkaline bouillons. No reason is, as yet, assignable, but Cantani,[7] in conformity to the observation of many others, that immune blood is alkaline, has shown in the case of diphtheria that the alkalescence is considerably increased during the production of artificial immunity, even after the first injection. This point alone seems sufficient to cause one to believe that alkalescence is essential to the action of the protective substance against the bacilli; hence the necessity for the alkaline basis for the Widal test-reaction.

The temperature condition under which the bacilli have been grown has no effect, except that the ageing of the culture occurs more rapidly under the effects of oven-culture than in room temperature. Jes[8] has recently published similar comparative results. The germs may also be killed by heat without losing the agglutinating power, provided the temperature does not exceed 57° to 60° C. for twenty to thirty minutes. The power also persists in bacilli dead through the fumes of formalin,[9] a feature which is further indicated in the longer-known fact that proper injection of the dead bodies of bacilli results in the production of immunity.[10]

A point of great value in the diagnosis by use of the microscope is the persistence with which dried blood-serum retains the inhibitory, paralyzing, and agglutinating powers. Thus, for four weeks, I made daily use of one small, dried mass of typhoid blood. This sample retained its power to the last. Other samples less positive from the first, quite rapidly diminished in agglutinating power. I have, however, had good results from blood-drops dried upon the glass slide for three months.

A feature, which yet remains clouded only because insufficient time has elapsed since Widal's discovery, is that arising to form the question of the duration of immunity. Though not properly within the field of this paper, it may be said that the time-test may be made with certainty only upon persons who have previously given the reaction or upon those now giving positive results due to past sickness. The negative results so far reported might only indicate that clinical diagnoses of years ago were in error. However, I notice that the blood of a typical case markedly active at convalescence, six months since the convalescence seems less quick. Further, cases of long standing (six months to three years) seem slower and less clean-cut in the paralyzing and clumping processes. Widal has reported cases of seven years' standing since convalescence, and Uhlenhuth[11] records one each for periods of eight, nine, and eleven years.

The limit of reliable reaction cannot be stated by one investigator for another. Many side conditions of manipulation intervene. The limit is personal with the observer, and based upon observation, which, of course, must be obtained by comparison of many tests upon normal and pathogenic sera. For example, if my own blood is allowed sufficient time, it gives quite positive clumping. The clumping is so satisfactory that it could easily lead to error, though I am not aware of ever having had an attack of typhoid. There is, however, in this blood no proper paralysis. This last feature is, perhaps, the chief objection to the bouillon-mass test. Jes[12] has said that many normal sera affect the typhus bacillus in bouillon after the same manner described as characteristic for typhus sera. This, I think, would appear true after any but the most careful methods of work and observation, but the facts now under record are of none the less significance. Old theories of immunity have already suffered a necessary revision, and the field of physiological chemistry is more clearly open than ever.

In regard to the use of the reaction in water-analysis, there is not much experimental basis for assertion. Stoddard definitely denies that the bulk-serum test may be considered reliable for a separation of B. coli communis and B. typhi abdominalis,[13] assserting that B. coli communis is not a well-defined species, and that some of the varieties react as does the typhus bacillus. However, it appears that he is too eager to propose a new method of separation to weigh well evidence already given by others. As his new method is nothing more than almost every working bacteriologist has probably brought into use for several years, I cannot let his argument weigh even against my own limited tests, which have been positive as far as carried. It is not supposed that any bacteriologist will rely upon a single feature of diagnosis when a dozen are at hand to make belief more certain. By the reaction for the hanging-drop method I have been able to separate typhoid bacilli from an artificial mixture of typhoid and B. coli communis and two other microscopically similar water-forms. Also, when confused in other tests in trying to differentiate between five similar cultures from sewage-contaminated river-water, this test allowed me to select the correct culture, as attested by later inoculation and post-mortem studies upon guinea-pigs.

No good worker is sure of a diagnosis so long as there is a possibility of error. So I think one need not depend upon this test alone; but, added to the other features open to present knowledge, I am quite certain this reaction furnishes the strongest test for microscopic methods. Consideration of all means available is necessary to good work, but to those prepared for inoculation and post-mortem examinations this reaction will be looked upon as but making the selection of the desired bacillus more certain prior to the final test of its character.

Serum for the hanging-drop method of fever-diagnosis is readily obtained from a slight skin-blister, pin-prick, or other slight cut, but I have found trouble to even have so much given in some cases. American patients do not seem so liberal with their blood-supply as European scientists demand. It is, however, not necessary to rely upon the human supply when it is necessary to have a quantity of the test-serum for examination of many separate cultures, though one scientifically inclined patient easily furnishes enough blood from a single pin-prick to test many slides. Guinea-pigs readily become immune through artificial protective inoculation, and the serum gives equally good results. One has only to arm himself with a sufficiently virulent culture, an injecting-syringe, and a pig, and proceed by properly graded, ever-increasing injections until blood drawn from the ear of the animal gives the desired reaction. This reaction begins to show in the blood after the first heavy illness of the animal, and becomes heightened after each recurring injection, and it is soon found that the animal is practically immune.

The reaction may be obtained by the use of the serous fluids from various organs of the body, as liver, spleen, gall, lymphatics, and other glandular structures,[14] but it is most intense in the blood-serum, which also furnishes the easiest source of supply.

In conclusion, I wish to express my thanks to Dr. Novy, of Ann Arbor, and Dr. Wesbrook, of Minneapolis, for cultures of B. abdominalis kindly furnished me by them, and, as touching further upon the specific nature of the reaction, I quote from the able investigator, Loeffler:[15] "Durch die Behandlung von Hunden mit steigenden Dosen Virulenter Kulturen der Typhusbakterien bezw. Colibakterien worden in dem Blute dieser Tiere Körper erzeugt welchen eine spezifische Schutz wirkung innewont, nur gegenueber derjenig Bakterienarten, welcher sie ihre erstehung verdanken." This, it seems to me, is in accord with the facts.

BIBLIOGRAPHY.

1. Centralblatt für Bakteriologie und Parasitenkunde, 1896, Band xix., No. 16.

2. La Semaine Médicale, 1896, p. 250. (Cited in Centralblatt f. Bakt. und Parasitenk., Bd. xxi. p. 52.)

3. La Semaine Médicale, October, 1896, p. 410.

4. Differential Diagnose der Typhusbacillus vermittetest Serum der Gegen Typhus immunierten Tiere. Deutschen med. Wochenschrift, 1896, No. 12. (Cited from Centralblatt f. Bakt. und Parasitenk., Bd. xix., No. 24.)

Centralblatt für Bakteriologie und Parasitenkunde, 1896, Band xix., No. 16.

Ueber die spezifischer Immutatsreaktion der Typhusbacillen. Detusche med. Woch., 1894, No. 48.

Weitere Untersuchung uber die spezifischen Immunitatsreaktion der Choleravibronen in Tierkerper und Reagensglasse. Centralblatt für Bakteriologie und Parasitenkunde, Bd. xix. p. 129.

5. Loc. cit., No. 4.

6. Centralblatt für Bakteriologie und Parasitenkunde, Band xx., No. 16, p. 129.

7. Cantani: Ueber der Alkalescence des Blutes bei active immunisierten Tieren. Centralblatt für Bakteriologie und Parasitenkunde, Band xx. pp. 566–573, No. 16.

8. Ueber die Bedeutung der Widalschen Sera-diagnostik, etc. Wiener med. Blatter, 1897, No. 3 (cited from Centralblatt f. Bakteriologie u. Parasitenk., Bd. xxi., No. 16, p. 617.

9. La rèaction agglutinante sur les bacilles Mortes. La Semaine Médicale, 1896, p. 38.

10. Pfeiffer and Kolle: Experimental Untersuchung zur Frage der Schutzinepfung des Menchen gegen Typhus abdominalis. Deutsche méd. Wochenschrift, 1896, No. 46.

11. Beitrag zur Serumdiagnose bei Typhus abdominalis. Deutsche Militariarztlische Zeitschrift, 1897, Heft 3. (Cited from extract in Centralblatt f. Bak. u. Parasitenk., Band xxi. p. 698.)

12. Loc. cit.

13. New Method of Separation of the Typhoid Bacillus and B. Coli Communis, etc. Journal of Bacteriology and Pathology, June, 1897.

14. Arloing. La Semaine Médicale, 1897, pp. 38 and 69.

15. Loeffler and Abel: Ueber die spezifischen Eigenschaften der Schutzkörper in Blute Typhus and Choler iummunier Tiere. January, 1896, Centralblatt für Bakteriologie und Parasitenkunde, Bd. xix. pp. 51–70.

A REVIEW OF THE FIELD OF VETERINARY SCIENCE.[1]

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It is well that we put aside our regular work from time to time and meet in this fashion, and upon such occasions it is appropriate for us to review the recent progress made by ourselves and by our profession. We can thus take our bearings and ascertain exactly where we stand in relation to the other professions, the commerce of the nations, and to our own past. There is also a temptation, particularly strong at such times, to peer into the future. So long as we confine ourselves to our regular work, to the plains and the valleys of things that are familiar to us, it is not possible to obtain this information nor to make these observations. It is only by comparing experiences, by adding the newly acquired knowledge of one member to that of another, by eradicating the ruts into which we fall so readily, and by resting our personal knowledge, thus improved and amplified, on the mountain composed of the accumulated wisdom of the ages, that we can obtain a complete view of our immediate surroundings and relations, and even an imperfect glimpse of the future.

In reviewing the field of veterinary science it is necessary to briefly consider the growth of this subject in order to fully realize our present station. The beginning of veterinary science coincides with the beginning of medicine, and is buried in the history of ancient Egypt and India. It is well known that the ancient Egyptians owned and cultivated domestic animals, especially the dog, ox, ass, goat, and goose. There is also evidence that the Egyptians bred antelopes in immense herds, and that this practice was given up some two thousand years before Christ, because other animals, particularly the sheep, displaced them. Although animals have been domesticated in all parts of the world, in more recent times the present list does not include more than twenty-five species, and has received no additions for several hundred years.

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[1] Presented at the Thirty-fourth Annual Convention of the United States Veterinary Medical Association, Nashville, September, 1897.

Animals constituted the principal wealth of the ancient roving tribes that covered Asia and gradually worked their way into Europe and Africa. It is but natural that when accident or disease overcame this valuable property that attempts should have been made to save it. Thus veterinary medicine began. As new views and theories arose in reference to the treatment of diseases of man these were applied without essential modification to the treatment of diseased animals;. but the early assistance that general medicine derived from veterinary medicine is far greater than this, because custom did not permit the dissection of human bodies, and all anatomical knowledge was obtained by dissecting animals, and all knowledge of the processes of disease was derived from the same source.

As time passed more and more attention was devoted to the study of the diseases of man, and veterinary medicine was relegated to an inferior position. This tendency increased until, as a result of certain influences, domestic animals became valuable and indispensable when it became apparent that something should be done to develop means for controlling the diseases that swept them off by thousands, threatened the health and interfered with the prosperity of the people.

With the revival of learning in the sixteenth century, the study of veterinary medicine was taken up by many men of much ability and of high station, but these men were not skilled in the fundamental branches of medicine, and their labors consisted principally in rearranging and compiling the knowledge that had been acquired and recorded by their predecessors. In other words, veterinary medicine was not studied from a medical standpoint but from the standpoint of agriculture, and we find the writings on veterinary medicine included in larger works on rural affairs.

At that time there were many books on horsemanship, the breeding and general care of animals, and on animals in their relation to agriculture, but scientific treatises on veterinary medicine in any of its phases were lacking, with the single exception of the *Anatomy* of Carl Ruini. This book, issued in the year 1590, marks the beginning of scientific veterinary literature, but, strange to say, the other branches of our science developed so slowly that it was not until two hundred years later that works on the other fundamental branches equal to the *Anatomy* of Ruini were avaliable.

However, sufficient progress was made during this early period to indicate that the science was of value, and as changed conditions developed in the habits of the people, in agriculture, in transportation, and in warfare, the infectious diseases of animals became more widespread and caused more and more oppressive losses. The diseases that caused the greatest losses during the seventeenth and eighteenth centuries were anthrax, foot-and-mouth disease, lung-plague, rinderpest, glanders, influenza, distemper, mange, sheep-pox, and various helminthic diseases.

In the last century, while all of the communicable diseases prevailed more or less extensively, rinderpest was most prevalent and caused the greatest amount of distress and loss. It ravaged the southern provinces of Russia, Poland, many of the States of Germany, Hungary, Austria, Italy, France, and Switzerland. It was so virulent in Holland that more than 200,000 cattle were destroyed by it in 1714; in Italy 70,000 cattle died in one year. During the entire century the disease came and went in waves, certain years being marked by especially severe invasions. For a time it subsided in Holland to such an extent that the herds were re-established, but in the two years from 1744 to 1746 another serious invasion occurred, and once more 200,000 cattle were lost, thus impoverishing a large proportion of the population. A number of serious outbreaks also occurred in England. In 1747, 40,000 cattle were lost in Nottingham and Leicestershire, and 30,000 in Cheshire in six months, after which the progress of this plague was checked by the slaughter of about 80,000 animals. Foot-and-mouth disease prevailed extensively in France and other Continental countries, and anthrax rendered it impossible to rear live-stock in many localities in Europe. Glanders also prevailed very extensively in all parts of Europe.

It was about this time that the stage-coach became prominent, and vast numbers of horses were needed for this new work. There were also great numbers of large estates where many horses were bred, and the need of more knowledge and better skill in treating them became painfully apparent. The cavalry and artillery arms of the military service were also in a a state of rapid development, and veterinary knowledge was in great demand in this connection. The field was ripe for the establishment of a veterinary school, and when Bourgelat organized the first one at Lyons it was received gladly and recognized as a great advancement in all parts of Europe. The success of this institution was so great that students were sent to it by all of the principal rulers, and they in turn established veterinary schools in their own countries, all of them closely copying the French system.

While the success of these schools was very great in so far as obtaining students and government aid was concerned, the fact remains, and sad it is it must be stated, that the results of these schools for the first decades of their existence were most disappointing, and they did not succeed in drawing to them as students young men who were well trained and came from the better classes of society. While the pupils sent by foreign governments were of the better class, most of them being surgeons, skilled horsemen, and educated agriculturists, those that followed and constituted the great majority of the student body in all of the veterinary schools during the first years of their existence were from the lower classes, and it is reported that many of them were unable to read or write. The teachers in these schools during this period, which has very properly been termed the "Empirical Period" in veterinary education, were not well-trained veterinarians because there had been no opportunity for the development and acquisition of a thorough knowledge of veterinary science, and most of them were surgeons who had a certain fondness for animals, and who had amplified their knowledge of medicine by adding to it some of the empirical, unscientific, and in large measure worthless teachings of the existing literature. Of course, it could not be expected that the influence of the old empirical systems that had grown and developed for hundreds of years could be thrown off at once, and a scientific course in veterinary medicine could not be given before the science of veterinary medicine existed. It is, therefore, not surprising that the veterinary schools failed to accomplish the work that was expected of them, and succeeded only in turning out men who were not above the level of the best of the unskilled veterinarians who preceded them.

Another condition that has an important bearing upon our study of veterinary medicine was the change in the method of transportation that followed the introduction of steam locomotives. This led to a sudden and tremendous increase in domestic and foreign commerce, to greater activity in all kinds of business and the establishment of keener competition in rural affairs, and the development of new systems of husbandry. Under the old conditions, local wants were supplied entirely by local products, and what a locality did not produce was not consumed in that district. With the improvement in methods of transportation, moreover, the wants of the people increased at least as rapidly as the means for supplying them, and changes were seen not only in methods of conducting business, but also in the social life and especially in the food of the the people.

Lydten, in a scholarly paper read before the last International Congress at Bern, called attention to the influence of this development on the diet of the people, and has shown that while meat is now at least three times as expensive as it was sixty years ago, about three times as much per capita is consumed by the inhabitants of European countries. It seems to be well established that the degree of activity of a people is indicated by the amount of flesh consumed. A more than proportionate growth has occurred in the consumption of dairy-products. It is not necessary for one to be very old to remember when milk was a rarity and butter a luxury, and to recall how these articles of diet have displaced other substances made from fruits and vegetables. The fashion in clothing has also changed to such an eextent that far more wool is now required to properly clothe a person than was needed a comparatively few years ago.

All of this has led to an astonishing growth of the live-stock industry, so that the public is far more dependent upon it now than it was in the last century, when the first veterinary schools were established. The growth of veterinary science has been proportionate to the growth of the industry that is protected by it, and without such development in veterinary science the live-stock industry could not have attained its present proportions, and the progress of the whole people would have been restricted.

When it became evident in the earlier decades of veterinary education that the schools then in existence were not properly filling their functions, and after a sufficient number of well-trained veterinarians had developed, a thorough reorganization was accomplished for the purpose, as expressed in the report of the German Royal Commission: "To improve the present empirical material, and, in addition to the practical veterinarians that now exist, to educate scientific veterinarians who can be employed to direct veterinary police measures and to teach in veterinary schools." As a result of this change, which was made in all of the original schools, veterinary education became more scientific, the scope of the schools was enlarged, more and better teachers were appointed and the result has been gratifying in the highest degree. Fortunately, these changes were made in the earlier years of the present century, and their effect has been evident for more than two generations.

Let us consider for a moment what good has been accomplished by the veterinary schools and what effect their work has had on national life and prosperity. Undoubtedly, the most effective work has been in the direction of controlling the infectious diseases of animals. Rinderpest has been exterminated from Europe, and does not prevail anywhere extensively, excepting in South Africa, where it is now numbering its victims by thousands, and is interfering most seriously with the progress of the country. If South Africa belonged to a state of Continental Europe their efficient veterinary police measures would have been introduced long ago and the disease exterminated. Unfortunately, England does not avail herself of the highest veterinary skill, and thus there is no opportunity for the amazing results that have followed its application in Continental countries.

Lung-plague, or contagious pleuro-pneumonia, has been controlled to such an extent in Europe that it does not cause serious losses at this time. Notwithstanding the fact that it once secured quite a foothold in this country, modern methods, as administered originally by Drs. Law, Thayer, and Lyman, and later by Dr. Salmon, have succeeded in entirely eradicating it. When we remember that pleuro-pneumonia was especially virulent in this country, due to the new soil that it found to operate on, to the fact that this is essentially an agricultural and cattle-breeding land, the immense scope of our territory, and the foothold that the disease had gained, we can justly consider its extermination as one of the greatest triumphs that veterinary science has achieved at any time in any country. If the disease had been dealt with as it was in England at that time, it would have spread over the entire face of the country and caused losses amounting to so many millions of dollars that it is impossible to estimate them.

Anthrax has been studied with such success that an efficient vaccine has been discovered by means of which animals can be inoculated and the development of the disease prevented. Moreover, so much light has been thrown on the life-history of the germ that we now know what measures must be taken to prevent the spread of this disease or its establishment in a certain locality after it has been introduced.

Foot-and-mouth disease, although it still occurs in most of the Continental countries, has succumbed to the veterinary police measures that are enforced to such an extent that it has not caused serious loss for a considerable number of years.

Mange of horses and scab of sheep, diseases that were formerly dreaded so acutely by horsemen and shepherds, are now comparatively rare. Distemper and glanders of horses occur from time to time, but they are kept in check so well that they no longer seriously menace the horse-breeding industry.

Texas fever, a disease which formerly destroyed thousands upon thousands of cattle every year in the United States, has been studied so thoroughly by Drs. Theobald Smith, F. L. Kilbourne, and others, under the auspices of the Bureau of Animal Industry, that preventive measures based on their discoveries are so successful that outbreaks of Texas fever are practically unknown north of the "Texas Fever Line." A few years ago outbreaks of Texas fever were very common; they occurred in the most unexpected localities and destroyed so many cattle that drovers and farmers were kept in a state of constant apprehension. Last year there was but one small outbreak in Pennsylania, and this year not a single case has been reported in that State. This, also, is one of the greatest triumphs of veterinary medicine. But development in this direction is not complete, and the researches that are now in progress will, it is hoped, lead to some effective measures under which Northern cattle can be introduced with safety into Southern States and Southern cattle can be brought north at any season.

Hog-cholera is a disease upon which a good deal of light has been shed during the past few years, but we are still without an effective means of preventing its ravages.

Tuberculosis is an affection that is arousing much discussion at this time, is occasioning most extensive losses, and must be dealt with more seriously in the near future.

The immense field opened by the discoveries in serum-therapy is of equal interest and importance to the physician and veterinarian, and much of this recent development results from the work of distinguished members of our profession.

The international trade in live-stock has developed enormously during the past few years. It is a comparatively small matter to ship cattle three thousand, four thousand, or five thousand miles, and with modern facilities these journeys can be made in a very few days. International trade in live-stock and live-stock products, such as hides, skins, and wool, has also reached immense proportions. These also are carried quickly between points on opposite sides of the world.

It will thus be seen that without proper supervision it would not be difficult for the most dangerous diseases to be carried long distances from the most remote countries into previously uninfected territory. But every civilized country has a force of efficient veterinarians and a more or less perfect system of quarantine and control, by means of which the ravages of disease that would otherwise be conveyed by this international commerce are avoided. It is appalling to consider the effect upon the nations of the abandonment of these systems. The United States would become reinfected with lung-plague, and we would quickly import the foot-and-mouth disease, sheep-pox, swine erysipelas, dourine, and possibly rinderpest and other deadly affections. Our live-stock industry represents an investment at this time of about two billion dollars. A few of these diseases, if uncontrolled by the application of modern veterinary measures, would quickly devastate it to the amount of 25 per cent. at least. This means a loss in cash value of $500,000,000, and there is no telling where the calamity would stop. On account of our somewhat isolated position we can protect ourselves better from the invasion of infectious diseases than the countries of Europe. There it is necessary to keep up a constant control of the most elaborate type, but it is successful in protecting the vast wealth invested in live-stock and in perpetuating the most important food-supply of the country.

The *indirect* importance to agriculture of protecting our animals is made apparent when we consider the value of their manure and attempt to imagine the appearance of our fields and farms unfed, unrenovated by this plant-food. While some districts could subsist for a time under these conditions, the vast majority of our farms would gradually lose their fertility, and become barren wastes.

In addition to the protection of the live-stock industry as a whole, which, it is evident, is essential to the continued prosperity of the country, the veterinarian finds important and remunerative occupation in the treatment of individual animals. As veterinarians become more proficient it is becoming more and more evident to the owners of live-stock that it is not profitable to allow their animals when ill or injured to languish or die or make such imperfect recoveries that a large portion of their value is destroyed, when many of these losses can be prevented by the employment of suitable veterinary skill. The veterinarian not only enables the live-stock owner to save money by preserving the life of his animal and restoring it to usefulness, but it is also economical to know that animals in certain conditions cannot recover. They can, then, upon the advice of the veterinarian, be destroyed painlessly, and the owner avoids the purchase of special food, medicine, and appliances and many days of expensive attention.

In its relation to public health, veterinary science is constantly growing in importance. It is well known that a number of diseases to which people are liable can be conveyed by flesh and milk, and the long-continued experiences of several of the most highly civilized European countries teaches us that these important foods cannot be properly guarded and their healthfulness assured without the employment of veterinarians to examine, inspect, and advise in reference to the management of the animals that produced them, the conduct of the dairy, the character of the flesh, as determined by post-mortem examination, and the care of these delicate foods until they are consumed. In Germany nearly every city has a municipal abattoir wherein all cattle killed for local consumption must be dressed under veterinary supervision. Each abattoir is under the management of a veterinarian with the title of director, who performs all the inspections himself, or, if the business is too great for this, is assisted by as many veterinarians as may be needed. In Berlin about one hundred are engaged in this work. The assistants are not, however, continuously employed. They are in most cases local practitioners, who are engaged to devote certain hours each week to this work, and are paid in proportion to the time occupied. In this country the National Government, through the Bureau of Animal Industry, finds it necessary to employ a large number of veterinarians in work of a similar character.

The relation of the veterinarian to the improvement of live-stock, through the introduction of improved breeds and species, and improvement by care and selection is a very important one, but one that has not received sufficient attention in this country. While there is a high general adaptability to their special purposes of the various species and varieties of domestic animals that are used in the United States there is still room for great improvement, and the average individual efficiency should be increased from 25 to 50 per cent. This can only be affected by a more thorough understanding and general application of the principles of breeding, selection, and heredity; by the education of breeders to recognize and more fully appreciate the valuable points and the defects of animals kept for different purposes; by the better feeding and care of animals during the formative period, and by a closer observance of the laws of hygiene and sanitation. Much can be accomplished through agricultural fairs, and exhibitions and live-stock shows.

Every veterinarian who has visited many exhibitions can recall instances of a most dangerous and destructive character wherein animals with hereditary unsoundness and defects of conformation have been awarded premiums. It is the duty of every veterinarian to thoroughly post himself on all branches of zoötechnics, on breeding problems, and general live-stock affairs, so that he may be qualified to serve in an advisory or executive capacity at live-stock exhibitions.

In view of the past achievements of veterinary science and the local, national, and international importance of its work at this time, there can be no question as to the future of this profession. In order, however, that the highest development may be obtained it is necessary that we should grasp the full significance of our labors. The trained veterinarian is naturally the expert on all live-stock questions, and upon him devolves the responsibility for the improvement and extension of this foundation branch of commerce and national prosperity. When viewed in these enlarged relations, there is more need for veterinary knowledge now than ever before; but to satisfactorily fulfil all of these modern requirements it is necessary that the veterinary students should receive more special training in some subjects that are now looked upon as minor branches by most of the veterinary schools.

When the veterinarian is the generally acknowledged expert on all questions of animal husbandry, and is freely consulted in matters of hygiene, breeding, selection, and feeding, the construction of stables and related matters, as well as on pathological questions, his field of usefulness and occupation will have become so broad that there will be a far greater demand for his services in every breeding and farming district, and this will continue to grow as the direct advantages afforded by such consultations become evident.

THE SIGNIFICANCE OF THE CAPTION OF A PAPER OR AN ADDRESS.

By A. W. Bitting, D.V. M.,
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A considerable degree of importance should be attached to the selection of a proper title of a paper or the subject of an address. Veterinary literature is being searched daily by those conducting investigations along certain lines, and it is necessary for the investigator to know the complete history of the work that has preceded him. He naturally consults those works having titles pertaining to the special subject he has under consideration. Many valuable papers are passed because the title does not indicate their character, unless, perchance, he should read them or his attention be called to them by some one.

Such captions as "An Interesting Case," "An Interesting Observation," "An Experiment," "Cases from My Note-book," etc., are of frequent occurrence in our literature. There is nothing about such titles to indicate the character by which they may be classified. A perusal of the articles usually shows that a much more appropriate caption might have been selected.

Two captions by which many carefully prepared pieces of work have been buried are "A Paper," or "An Address," by Dr. ——. Not all papers or addresses are prepared upon a single topic, but the majority are, and to have them appear without an appropriate subject is to limit their usefulness to those who may read them when they are published. They do not appeal to the busy student in succeeding years. Many of the most valuable papers published in the earlier volumes of the *Veterinarian* are thus buried. The same is true, however, to a greater or less extent of all our journals, even to the present time.

Recently the writer has been preparing a card-index of the veterinary literature in his private library, and has a total of over forty thousand reference-cards. Of this number more than three thousand are useless, because of improperly selected titles. This is unfortunate, but indicates the greater care that should be exercised in the future.

Second only to a proper selection of a title is the desirability of having the full name. It is an honor to be distinguished as principal, professor, or doctor ——, and be known to the entire profession. But time passes rapidly, new members are added to the profession, and men of the same name, occupying the same or like positions become contributors to the journals, and confusion arises in ascribing some of the work to the proper author. It has already become a difficult task to prepare a bibliography of some of our well-known writers, because of using the title of his position to distinguish him, instead of his full name.

Iowa is said to have suffered a loss of $15,000,000 from hog-cholera alone in 1896. Surely too great a burden for any one Commonwealth to have borne in these times.

SOME SALIENT POINTS IN CANINE PRACTICE.[1]

BY WALTER AMOS, V.S.,
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WITH none of our friends and helpers among the lower animals would we part so reluctantly as with the dog. No speechless associate of man has ever so entwined itself around the very roots of our domestic life as the dog; none has won so much admiration, confidence, and affection; none has appealed to so large a number of mankind of every condition, age, and sex. It will, therefore, be conceded that so noble, so intelligent, and so faithful an animal as the dog is entitled to the most complete understanding and the best usage of which we are capable.

The professional treatment of the dog in disease naturally falls to the veterinarian; but, inasmuch as the dog is very different in his nature from the horse and other herbivora which engage the chief attention of the veterinary profession, it follows that if the dog is to be treated on a rational basis, he must be made the subject of special study by the veterinarian.

A knowledge of equine medicine goes but a little way to qualify a man to treat the dog successfully, and the sooner this is recognized by the profession of comparative medicine, the better it will be for both the profession and our canine friends. If the veterinarian hopes largely to acquire the confidence of the public as regards dogs, he must show not only that he has a grasp of medicine as medicine, but a special knowledge of the nature, varieties, and peculiarities of dogs. The dog must be understood in health, before his ailments can be appreciated and treated, and the more intelligent body of breeders and owners of dogs thoroughly recognize this. To successfully treat a dog in sickness, and for the veterinarian to be proficient, he must study the dog in health. By this course the individual under treatment is known, and thus acts as a mariner's compass as to the diagnosticating of the disease. The principle will bear repeating: Try, as much as possible, to become conversant with the habits and actions of the dog in health, and the diagnosis of disease will be greatly simplified.

We have now to consider those deviations from the normal which constitute what is termed "disease."

Disease is nothing more than an altered function, a more or less departure from the natural condition; hence to know what is the natural condition of an animal is the first requisite for the understanding of disease. We must always have a standard of comparison. Scientific medicine is impossible without scientific pathology, or knowledge of altered function, and this, again, is dependent on a sound physiology or knowledge of the normal behavior of the body. Treatment is based on both as well as a knowledge of causation.

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[1] Presented for consideration at the meeting of the Minnesota State Veterinary Medical Association, Owatonna, July 14, 1897,

The most useful instrument in diagnosticating disease in a dog is the thermometer, and here is where the value of being thoroughly acquainted with dogs and their temperament takes place, or becomes valuable, for we must recognize differences not only for breed, age, sex, etc., but also for each individual. From personal observation and experiments made in taking the temperature of dogs of all kinds, from the great Dane and mastiff to the rat-terrier and lap-dog, as well as from information obtained from reliable authors and other sources, we find that the temperature of the dog very rarely falls below 100°, and it is also important to note that it may rise to 102° or even 102.5°, so that a conclusion that fever exists cannot be made on a reading of 102.5°, especially in a puppy, in which the temperature may naturally be higher than in an adult dog, and is liable to oscillate, as in human infants, very rapidly. But temperature under 99° or over 103° should arouse suspicion of disease, and even a temperature of 102·6°, if constant, cannot be normal.

The pulse, as indicating the rapidity and character of the heart-beats and the condition of the arteries, conveys to the experienced a world of information. It may be conveniently taken in the groin of the dog, but often it will be necessary, especially in the case of small dogs, to attempt to get at the state of the heart directly, which can readily be done in the dog by feeling the organ through the chest-wall. As the dog is a very excitable animal, he must be quieted and soothed as much as possible when the pulse is being taken, or the heart examined, especially by a stranger. In all cases it must be ascertained that the pulse is not merely transiently affected as the result of temporary excitement from the very process of examination or otherwise. Also the variations natural to the different position of the body are not to be forgotten.

The pulse at birth is very rapid—130 to 160; for the first three months, 120 to 140; at from the sixth to the ninth month, 90 to 110; after one year, 70 to 90. It must be understood that these are only rough estimates, so wide are the variations with age, sex, breed, position, temperament, etc. A merely rapid pulse, with no elevation of temperature or other unfavorable symptoms, is not of great significance usually. It is to be borne in mind, too, that when an adult dog is quietly sleeping the pulse may be very slow, even to 40 beats. I also wish to draw special attention to a feature of the pulse of the dog to which reference is seldom made—that is, with each expiration the pulse is slower and stronger and beats uneven—a condition of things which, if in man or any other animal, would be certain signs of disease in a large proportion of cases, and a dog that shows the pheuomena in question decidedly is never a puppy, and they are never absent in a mature dog, so that these constitute in some measure an indication of age. By the inexperienced these peculiarities might readily be mistaken for abnormalities of the heart. The ratio of the respiration and pulse in the dog is about the same as in man—that is, about one to four when the dog is not heated or excited by overexertion.

It can readily be seen from the foregoing that the student of canine medicine should associate as much as possible with the dog to acquire the desired familiarity. The idea that a student of medicine can get all the knowledge of the dog that is required from seeing sick animals as they may be brought to an infirmary, though widespread, has not proved correct, and perhaps explains in no small degree that lack of confidence in veterinary surgeons as regards the dog, which is certainly prevalent, if not well founded. Departure from the normal can only be adequately appreciated by him who knows the normal (healthy) dog.

The physical examination of the dog is easy in itself, but may be troublesome if the animal is restive or fractious. I have heard even veterinary surgeons say that the dog should be taken out of sight of its master, quickly thrown down and so handled that he will be taken by surprise and offer no resistance. Remember a dog is a being of great sensitiveness, of strong likes and dislikes, and has a remarkable instinct and memory. A dog may be so treated that it will be almost impossible for the same person ever to succeed a second time in examining him or giving medicine. Moreover, if a dog resists it is impossible to form a correct judgment, as his functions are disturbed by that resistance. If a dog is treated so that he shall see that no harm is meant him, he will usually quietly submit according to his natural amiability, a little rubbing of the head, a few soothing words, a gradual approach toward the real object may occupy a few minutes at first, but save indefinitely in the end. Now and then there are exceptions; but in my own experience they are very rare. Therefore, in making an examination of the dog it is most important to do it in such a way as will render it easy of accomplishment on the next occasion; unless this be carried out so that it is at least not disagreeable to the animal, or as little so as possible, the trouble will increase on each repetition.

The closer observation and investigation we make the more we are led to see the similarity between the physical constitution of the canine race and that of man, also the similarity in the character of his diseases and the way in which medicines and other remedies react on him. It is quite impossible to treat the dog successfully on the same principles as the horse, ox, etc., while with comparatively few exceptions human medicine is directly applicable to the dog. As the treatment of the dog falls to the veterinarian and not to the human physician, it is all the more necessary that a special study should be made of the dog, taking human, rather than equine medicine and doses, as the standard of comparison ; hence in treating the dog we have to use the same or similar food-stuffs, similar medicines, in similar doses, and the same external and internal treatment generally with man.

A very few drugs are known to be required in larger doses for the dog than for man—aloes ; but this medicine alone is not a good remedy for either dog or man. Dogs are peculiarly liable to be salivated and even poisoned by the use of calomel, or mercury, in any form, so that great care must be taken to see that it is administered in very small doses (¼ to 3 grains), and speedily removed from the system by a saline or other aperient. Turpentine is another drug dangerous to the dog, but the same applies to man. It is also important to note that opium or morphine can be tolerated to an almost unlimited extent. A large dose of opium nauseates a dog profoundly, but is not at all likely to poison him.

A rule for the dose of any medicine given to the dog, based on that given to the horse or any other animal, is extremely difficult to lay down. In general it may be said that for the largest dog (St. Bernard or mastiff) the dose is the same exactly as for a full-grown man. For a dog of, say, forty pounds, a dose about the same as for a fourteen-year-old boy, or two-thirds that of a man. In the case of small matured dogs, such as terriers, spaniels, pugs, etc., one-third to one-half the latter dose will be near the mark. In the case of puppies two months old or under, the less medicine given the better ; very few and small doses. For constipation in suckling puppies treat through the mother.

Methods of administering medicine are of similar importance to the method of examination, before given in this paper, because of the difficulties that arise if the animal becomes unmanageable or objects seriously to the treatment. Harshness with dogs is so radically opposed to their nature that it in every way defeats the end in view.

Each practitioner has his own methods of giving medicine. I will here give a few methods:

1. Get the dog backed into a corner; press the lips against the teeth; when the mouth is open, pass the medicine far back, rapidly close the mouth, and wait for the dog to swallow, covering the nostrils, if necessary, to compel him to do so.
2. Insert the mouth of a small-necked bottle containing the medicine in the pouch between the angle of the lips, pouring the liquid back.
3. Pouring medicine down, if liquid, from a spoon.
4. Giving pills in meat.
5. Attaching a cloth to the upper and lower jaw to hold them open in the case of dogs large and hard to manage.
6. Keep the head up after administering, to prevent vomiting.

While the above methods may be useful as guides, and successful or necessary in some cases, the nature of the dog and the amount of experience one has must greatly determine the method. If possible, it is well that a dog should not know that he is getting medicine at all, so that if the latter can be given in small pieces of meat it is most desirable. Modern pharmacy has greatly aided the canine practitioner in the manufacture of pills and tablets and capsules, thus making medicine easy of administration, as a dog's stomach will not tolerate nauseous draughts. So many drugs are now put up in useful combinations for man's use that we can avail ourselves of a large field for selection. Gelatin capsules No. 0, No. 00 serve every purpose for dogs. It is often necessary to give castor-oil to dogs. This is done with greater ease if the spoon and oil are both heated, when it will run off the spoon and down the dog's throat easier. Quickness in the administration of medicines is of great importance.

My own way of giving medicine to a dog is: Never use fluids that must be poured down if possible to avoid it. Get the dog against a wall, a corner preferred, between the knees, press on the lips just enough to cause the mouth to open, then insert the gelatin capsule, moistened with saliva, far back on the tongue, and giving it a gentle push with the fingers, suddenly close the dog's mouth, when he usually swallows, unaware almost of what has happened.

Then pat him on the head, say an encouraging word, and he has no worse opinion of his physician than before.

Hypodermics are usually not advisable in the treatment of the dog, only when the stomach will not tolerate medicine.

In all dealings with dogs the motto should be: Decision, rapid action, and gentleness.

PATHOLOGICAL SHOEING.[1]

By W. H. Yingst, V.S.,
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The subject of my paper, "Pathological Shoeing," is one that has attracted a great deal of attention, especially of late years, and the discussion has brought out a great variety of opinions. It is a subject of such a nature that, if one is interested, he will find that each day adds to his knowledge, and there is no saying how long a man may study and practice before becoming expert enough, by looking at a horse's foot, immediately to know the kind of shoe to apply to correct a certain fault. But I believe that by study and observation a man can acquire this faculty, and will recognize that the same faults in different horses cannot all be corrected by any one method.

The horny box contains the lower portion of the second and third phalanges, the navicular bones, and lateral elastic fibro-cartilages, covered by a vascular network allowing of but moderate movement, and synovials of the flexor-tendons, resting on an elastic cushion, all enveloped in a dense keratogenous box—wall, sole, and frog.

In the horny box, in front, besides the bones, are observed the anterior extensors of the phalanges; on the sides, the anterior and posterior lateral ligaments. The lateral cartilages occupy the space between the posterior border of the anterior lateral ligaments and the anterior borders of the posterior lateral ligaments. The perforans tendon, behind, reaches the navicular bone and spreads into a wide, keratogenous or horn-growing membrane. The plantar cushion is a fibro-fatty mass, in shape like a frog, and lies against the posterior portion of the phalanx, and corresponds to the faces of the lateral cartilages, and is continuous with their fibrous capsule; the inferior surface rests on the superior face of the frog; it is dense and elastic.

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[1] Read at the June meeting of the Schuylkill Valley Veterinary Medical Association.

The horny box comprises the wall and sole. The wall, if spread out, would be a perfect crescent; the ends of the crescent turn in at an acute angle behind, being the heels, and extending obliquely forward and converging toward each other, comprise the bars; immediately above the heels can be observed the glomes. The outer wall is usually the thickest. At the upper extremity of the wall is a concave bevel (cutidural cavity), in front the periople or coronary band. In very young animals this band extends down the wall, but in the rasped hoof it has disappeared, except at the top of the wall, where it is thick and adherent.

Structure of horny box: On the inner side a series of laminæ, five to eight hundred in all (if spread out on a flat surface would probably cover a space of twelve square feet); the longest, corresponding to the length of the wall and one thirty-second to one-eighth inch in width. Next to the laminæ a layer of white cement, next a layer of dense fibrous tissue, then two more layers of fibres, increasing in density from within to without. Where the sole joins the wall the laminæ disappear, thus bringing the sole in direct apposition with the cement layer, which is always in excess where the sole joins the wall. The frog—a homogeneous, wedge-shaped structure—is continuous with the coronary band. In alluding to the white line I mean the cement layer, the bony column from the metatarsus or metacarpus to the third phalanx included.

To come at once to the subject of this paper, we will first consider a perfect foot and hoof—one upon which a horse travels perfectly sound. The bones are and must be in perfect apposition, and are a column. The front limbs are vertical with a line drawn from the point of the shoulder down. The os pedis is level and on the same horizontal plane with the sole, which itself is level. Quite a number of horses are brought for treatment that would travel square and sound if the hoof was level, which is essential, though most farriers seem to attach little importance to it, viz., if too much wall to the outside, the horse would stand wide, the os pedis would not be on the same horizontal plane as the ground, but the bones would represent a straight column, though they would be in an oblique direction from the body. In this case by simply making the foot level the animal would stand in a correct position and be made to travel square. The horse will always travel or stand in a position that will cause the bones to be a perfect column; thus he points, invariably, to the highest part.

The trouble with many farriers is that they do not understand the art of levelling and balancing, which is the first and most important knowledge. If the wall be pared, cut, or rasped to a level with the sole, the white line is plainly and evenly seen, and a level bearing is assured from the ground up—that is, of course, providing the structures in the hoof are normal. If the heels of the front hoof are too high, the horse will point back under himself. The hind feet may be perfect, but they are necessarily carried forward under the body to assist the balance. In this way the structure of the hind feet will become overtaxed, the horse lame in all four feet (an example where the good suffers with the bad).

In a case of sore-tendons all that may be required is to level the hoof. A centre-bearing shoe corrects nearly all faults, because, with such a shoe, the horse is allowed to rock and to seek the position most comfortable; he almost immediately ceases to point, and, though painfully lame before applying the centre-bearing shoe, an improvement will at once be noticed.

In a case where the hoof is found to be level and the horse points, one would at once know that the bottom of the hoof and the end of the column of bones are not on the same horizontal plane. Take, for example, a horse standing with the front feet ten inches or more apart, you would know at once that there is a greater space between the os pedis and sole to the outside than to the inside, and at the same time the bottom of the hoof is perfectly level. You will understand at once why the animal stands and travels so wide, viz., to cause the bones to stand as a straight column, though it is an oblique column. A horse travelling wide from the above cause usually interferes, striking the inside of the opposite leg a little above the fetlock-joint at each step. The farrier might wonder how a horse travelling so wide could interfere, but any intelligent veterinarian can readily comprehend: as the foot is lifted from the ground and the leg advanced the adductor muscles carry the foot in, giving it a semicircular movement, while at the same time the hoof rotates in and strikes the opposite foot, usually above the fetlock-joint. If this fault is due to an uneven hoof, levelling is all that will be required; but due to pathological changes as above described, or as often observed in the so-called awkward colt, caused by an unbalanced third phalanx, it is usually inherited. In such a case pare and rasp the hoof level, then apply a shoe elevated to the inside by means of two calks, placing one back of the inside toe and the other crossing midway the line of the inside. The horse will almost at once bring the limbs into a vertical position—*i. e.*, vertical at a line drawn from the point of the shoulder down—and the bones will be a perfect column. The horse will travel square, semicircular movement of the leg and foot and rotation of the hoof will cease, and, in consequence, will not strike.

It is common in some localities to see awkward colts—*i. e.*, cow-hocked—toes turned out of both front and hind limbs. The owner usually finds it necessary to use boots on his horse. In a case of this kind, where the animal straddles widely, the toes turned decidedly out, a modification of the above shoe will cause the animal to go square almost at once. It consists in, first, making the foot perfectly level, then applying a shoe provided with a calk to its inside, the calk to be two inches long. Instead of allowing the calk to be of a uniform thickness it is made an inclined plane, starting square and fully a half-inch thick in front, and gradually decreasing from before to behind, where it ends level with the shoe.

A horse perfectly balanced to-day may lose that nicety of equilibrium to-morrow, if, being reshod, a perfectly level bearing is not obtained. An enormous growth at the inside or outside, or at the toe or heel, will cause the horse to point, and always to the most elevated place—as he will also point toward the highest part of an uneven shoe, though the hoof be level. A perfectly sound horse can be made to stand in a number of strange positions at the will of the man who does the shoeing. By putting on a shoe elevated at the inside, if the calk is high enough, the animal will be made to cross his leg, which proves how easily a horse's balance can be affected. The various directions a horse will point, being too high at parts, are too numerous to mention. When a horse points it is to get relief for an unbalanced, tired phalanx, which would naturally cause pain if the horse would stand to the vertical line. Thus the trouble continues, the horse not always being able to take care of the structure of his foot, and, especially when travelling, becomes painfully lame, and goes from bad to worse—the much-reiterated "no foot, no horse," becomes a fact with most owners of such unfortunate animals. Why? Because the owner, after spending considerable money for shoeing, and as much more for medical treatment, is so disgusted that the horse is sold for a mere song to a carter. A good horse is thus sold and isolated from his proper sphere for the want of proper treatment.

To recognize an unbalanced third phalanx, and to be able to know the position of that bone in the horny box from the way the horse stands, is the problem to comprehend to be able to correct all faults, and in correcting any trouble a perfectly level hoof is essential; but if the third phalanx is unbalanced in a level hoof, you have an abnormality to deal with—one that has undergone pathological changes as above described. In such cases an instance of treatment has been mentioned.

An interesting way to make oneself understand the causes of different lamenesses and pointing from an unbalanced third phalanx, is to procure the third phalanx, have a stick eighteen inches long fastened to its pyramidal eminence, attach a string at the upper end of the stick, and put a weight on the lower end of the string. Place the third phalanx on a level and the stick will stand vertical; then by raising the third phalanx at given points, singly, by means of a ruler, one can readily perceive the different troubles that such a condition would cause in the living horse, and why the animal would point.

A thorough practical knowledge of the theory laid down in this paper will make a man so competent that he will not get a case of interfering which he cannot correct, and that, too, at the first dictation at shoeing.

Various kinds of shoes are used. The "ball-bearing" is an iron plate, the lower portion convex, representing part of a sphere. If this shoe is used on a horse painfully lame, from an unbalanced foot, a remarkable improvement will be noticed when the horse is led away from the shop.

Another shoe which allows the horse to seek the most comfortable position, whether standing or travelling, is the centre-bar shoe, made by having the bar run from the toe and resting behind on a bar crossing at the heels. The centre-bar is to be a decided rocker from before to behind. A centre-bearing shoe acts exactly like the ball-bearing. It is a cross at the centre of the shoe, and a calk placed exactly in the centre of the bar acts as a pivot.

To prevent a horse from forging, allow a long toe to the hind hoof, and there is an advantage in allowing the toe of the shoe to extend half an inch beyond the toe of the hoof. The front hoof should be perfectly level and as short at the toe as allowable. The shoe should have a decided roll from two inches back of the toe to the toe. I have frequently observed farriers, when treating forging, allow the wall of the hind hoof to extend beyond the toe of the shoe, giving as an excuse that if the horse would strike he would hit with the toe of the hoof and not with the shoe, and thus do less damage; but, of course, the latter method would not by any means remove the cause.

In contracted heels the hoof gets smaller, the frog becomes atrophied, there is an increased concavity of the sole, and the walls at the quarters and heels approach, and may become almost vertical. The outer surface of the wall is usually dry, and the hoof is predisposed to crack. A shoe fitting too tightly at the heel, and nails driven too far back, preventing the hoof from expanding normally when the weight of the body is placed upon it; allowing the shoe to remain on too long, the hoof getting an abnormal length and growing away from its vascular supply, causing it to dry out; rasping the walls, as practised by farriers, allowing of evaporation and diminishing elasticity; cutting the bars or opening the heels, as it is termed, are some of the easily recognized causes of contraction. Pare and rasp the hoof until the white line is plainly and evenly seen, and then the hoof will be at a proper length; turning the horse in the field, or wearing tips, if kept at work, are two remedies, but not always satisfactory to owners. The heels can be spread beautifully in four or five weeks, while the animal is at work, by means of the hoof-expander, the patent of the late Prof. David Roberge, of New York city. If the heels are to be spread by means of a bar-shoe, the bar should be the shape of a V, the point of the V resting well toward the centre of the frog.

For corns a shoe must be so constructed as to avoid the corn altogether, as toe- and quarter-cracks, when they occur, are usually a sequel to one of the above. I will not speak of a certain shoe to correct this trouble; predisposing causes must be dealt with, the hoof can be softened with oil, and then the crack completely cut out in the shape of a V; then if the hoof is kept soft, and its other troubles looked to, a sound hoof is assured.

Horses having heels that grow down vertically should receive special attention in keeping the heels at proper length, lest the horse becomes worthless. Such animals should be provided with a shoe that rocks backward. It is a cure as well as preventive.

Knee-spring can result from various troubles, but is usually caused by the hoof being too high to the inside, in which case the knees are noticed to be out as well as sprung forward; whereas, if caused by being too high at the heels or toes, the knees are noticed to be sprung straight forward. A horse becoming knee-sprung from an overgrowth at the inside of the hoof is subject to other troubles, such as bursa enlargements, spavin, and ringbone, the too great height at the inside causing an excess of pressure upon the bones at the joints, producing inflammation and bony deposits. Nine horses out of ten suffering from inside spavin are too high at the inside, and usually toward the toe; therefore, by paring the hoof level and applying a shoe that has its inside toe cut down to a decided bevel-roll, the horse will frequently be made to go sound. The outside spavin, or any exostosis at the joints at the outside of the limb, is caused by the outside toe being too high, and naturally the treatment is the reverse of that for inside exostosis.

Knuckling of the hind feet is caused and cured in the same manner as knee-spring and bony deposits.

If a colt is watched and cared for, or I might say if all colts were looked to, in regard to keeping the hoofs pared to the proper length, all the troubles resulting from an unbalanced third phalanx would be avoided. This assertion can be verified by calling your attention to the colts and horses on Mr. Robert Bonner's farm. He always has a hundred or more, and takes particular care in keeping their hoofs at a proper length by paring and levelling whenever necessary. In consequence, he raises colts to horsehood, and not a faulty animal is found on his farm.

I might continue this paper to twice its length by dwelling on other lamenesses and methods of correcting the same; but I am fearful that I already have taken up too much time by explaining things that would be readily understood by the profession. I will reiterate that an unbalanced third phalanx is the cause of all trouble, and that knowing how to level a horse's hoof and to bring the phalanges into perfect apposition is the key to the only true method of pathological shoeing.

SELECTIONS.

Referring to poisoning by larkspur or monkshood, Veterinarian Knowles, of Montana, issues the following pertinent suggestions: The most widely distributed species grows in almost every part of the State. This species is without hairs at the base, but with spreading hairs above. The leaves are five-parted, with divisions two or three cleft. The flowers are large, deep blue; the upper petals veined with purple, the spur long and slender. From the observation of several cases of larkspur-poisoning, which happened in Montana early in the spring, at a time when the blossoms and seeds had not yet been produced by the plants, without any doubt the poisonous principle in larkspur is distributed throughout the whole plant (root, leaves, flowers, and seeds), and, therefore, poisoning may occur at almost any time during the life-period of the plant. I ascertained upon close investigation that cattle and sheep are most likely to eat the plant and become poisoned when they are on a range short of grass or when turned immediately into a locality while hungry and in a condition to eat any plant-life in sight.

The common symptoms of poisoning in sheep and cattle are manifested first by the animal straying behind the herd, appearing dull and indifferent to its surroundings, but if suddenly startled will walk in a directly straight line until meeting some obstruction, when it probably falls, makes but a few struggles, lying remarkably quiet under the influence of the poison. There is rarely any bloating or hoven, but in nearly all cases a dribbling of saliva from the mouth, champing of the jaws, and frequent attempts at swallowing.

The treatment most successfully applied has been pouring water of ammonia onto a rag or sponge and holding the same to the animal's nose until it fully inhales the fumes of the ammonia; it sometimes is necessary to pour five or six drops of ammonia into the nostrils. The administration every ten or fifteen minutes to sheep of a teaspoonful of ammonia-water, and the administration of alcohol (in tablespoonful-doses) diluted with three times this quantity of water every fifteen or twenty minutes, will be found beneficial when ammonia does not promptly relieve the animal. Where it is possible, and the drug is accessible, a hypodermic injection of the sixtieth of a grain of atropia sulphate to sheep and one grain to cattle will bring about a cure or relieve the poisoning rapidly, often reviving them when they are apparently beyond help. Digitalis and nux vomica in small doses are also useful, and frequently bring about a cure very promptly.

The *New England Farmer* very effectively answers a correspondent who says "where the eye fails to detect tuberculosis the disease is so infinitesimal as to preclude its danger to consumers of meat and milk."

The disease may advance considerably, even so much as to make it possible that the milk and meat may be diseased before the eye can detect any trouble. Still we admit that tuberculin will also detect the disease in such early stages that the milk and meat at the time of detection are perfectly wholesome; but we must remember that while the animal might grow no worse and might even recover, the chances are that in the majority of cases the disease would increase until both milk and meat might be dangerous, and the animal a loss to its owner. When the danger-point comes and is passed no one can tell.

We do not see how anyone can dispute these fundamental facts. The best method of procedure to be adopted, based upon these facts, is, as the *New England Farmer* has stated many times, a matter of doubt; and unquestionably slightly diseased animals can be isolated and cared for so that they will not contaminate others, and so that they may have many years of safe usefulness; but how much will the average farmer save by going to the expense of isolating such animals and caring for them as would be necessary under the circumstances? Would not the average farmer be about as well off to kill such animals at once, especially if the State will pay part of the expense, as he would be to attempt a course of isolation and doctoring? It is not economy to pay two dollars for the purpose of saving one.

While it may be that the communication of consumption to the human family through the bovine is "extremely improbable," it is a fact that the preponderance of medical sentiment regards the communication as possible to such an extent as to urge many precautions which were not regarded necessary a few years ago.

VACCINATION OF TUBERCULOSIS.—Richet vaccinated a dog with tuberculous poison which had been taken from a fowl. Some months later he vaccinated this same dog as well as five others with human tuberculous poison. All five latter dogs died of tuberculosis within four months, while the first dog remained continually healthy. A second dog was now handled exactly as the first dog. He, together with five others, was sometime later infected with human tuberculous poison. Again, the five dogs died of tuberculosis in a longer or shorter time, while the first one remained sound. A third time Richet vaccinated another dog, not with fowl-tuberculosis, but with a weak dose of human tuberculous poison. Later this dog, together with another, was infected with large doses of human tuberculous poison. The former remained healthy; the latter died of tuberculosis. That it is not a question here of accidental immunity is proved by the death of the five dogs in the first two experiments. It can only be assumed that immunity is brought about by the weak tuberculous substance. However, this is, alas! not free from dangers; although it is undoubtedly effective, it kills about 50 to 75 per cent. of the animals experimented upon. For the present it cannot, therefore, be utilized in therapeutics.—*Berl. th. Wosch. in Thierarzt. Centralblatt,* November 1, 1896.

EDITORIAL.

THE VETERINARY PROFESSION: ITS RELATION TO THE HEALTH AND WEALTH OF THE NATION.

THE above is the comprehensive title of a pamphlet that has just been issued by the Veterinary Department of the University of Pennsylvania. This publication contains about twenty articles by distinguished alumni of the University of Pennsylvania, in which the various phases of veterinary work are discussed in all their bearings. It is illustrated by sixteen full-page, half-tone plates of scenes about the Veterinary Department and University.

The introductory article on "Veterinary Medicine" is by Dr. William Pepper, Professor of the Theory and Practice of Medicine and of Clinical Medicine. Dr. Pepper calls attention to the dignity and importance of veterinary work, its probable future, and the rewards that it offers for thorough students at the present time.

This pamphlet serves to show the great scope and value of veterinary science, and treats of a number of most important subjects that are too frequently lost sight of. The matters of diseases of animals transmissible to man, and meat-, milk-, and dairy-inspection as practised under national, State, and municipal direction are discussed in detail. The advantages of a veterinary training to the breeder and the physician are the subjects of two of the most interesting papers in the book. The development that may be expected in the science of horseshoeing, it is shown, must come from the veterinarian, and the advantages of such development are made manifest. The pleasures, trials, and rewards that fall to the lot of veterinarians practising in the East, South, and West, in city and country, are dwelt upon separately in articles that cannot fail to yield encouragement to the bulk of the profession, but to which no exception can possibly be taken because they are written by men who know whereof they speak; they are judicious and instructive. Veterinary science as it is taught in agricultural colleges, canine practice, a course in veterinary medicine preliminary to advanced work in medicine, the veterinary service in the United States Army, are subjects of short articles that are full of information and sound reasoning.

The entire book comprises eighty-eight pages. It is gotten up in the highest style of the printer's art—it is really a typographical gem—printed on the best of paper, the cover illuminated in the University colors—red and blue. The entire work cannot fail to make an excellent impression on everyone into whose hands it may come. It is safe to say that this is the most comprehensive, most reliable, and best publication on the subject so cleverly expressed by the title that has ever appeared in America. While it is issued by a veterinary school, it is in no sense a catalogue or prospectus, but a fund of information dealing with the veterinary profession in a new and original way and on a high plane.

This publication will do much to educate the public to a more complete recognition of the value of veterinary work, its general scope, usefulness, and possibilities, "its relation to the health and wealth of the nation."

ALASKA—KLONDIKE.

THE suggestion made by one of the resident missionaries of Alaska that our government would do well to stock that country with reindeer should not go unheeded. Perhaps our Bureau of Animal Industry would find this another avenue of great usefulness to our people. The animals would live, and, under proper care and direction, do well, and be a source of supply of milk, meat, and clothing, tending largely to mitigate the hardships of that country. There is sufficient for them to feed upon, and their disposition to forage under the snow fits them peculiarly for that region and its people.

We are not aware of any special information as to the susceptibility of these animals to tuberculosis, but no doubt if affected they would respond to the tuberculin-test, and the country could be stocked with animals free from this disease, and occasional examinations would keep them practically exempt. The climate of Alaska is not favorable to the multiplication of the tubercle bacilli, which adds to the worth of the suggested plan. We should not forget the parental duty of our government in conserving the best interests and welfare of the whole people, and we especially commend this suggested aid to the consideration of Secretary Wilson and Chief Salmon.

THE FUTURE OF SERUM-THERAPY.

THE serum-treatment of diphtheria in Berlin is said to have brought the average mortality down to 12.3 per cent. in a total of 5794 cases. Its application to tuberculosis goes on, and gratifying results are being reported. Dr. Paul Paquin reports some 226 cases treated with antitubercle-serum, with forty recoveries and a large number of improvements. Leprosy, cancer, Asiatic cholera, swine-plague, and snake-bite are all new fields for the employment of the serum-treatment, and the future is full of promise in these disastrous and painful afflictions. In comparative medical science we have many promising fields for the employment of treatment along these lines, and with many new workers in the field we are sure that much will come from their labors. The losses of a monetary character in the live-stock industry are such as to demand more efficient measures and to warrant the most extended investigations, with the hope that the losses may be in a great measure controlled. We are glad to note that the General Government, and several of our State governments, notably Nebraska, Pennsylvania, Minnesota, Wisconsin, and Texas are making appropriations of money, and are securing the best talent to work out these perplexing problems.

WHERE NEXT?

THE thirty-fourth annual meeting of the United States Veterinary Medical Association will largely influence the place of meeting for 1898. The Executive Committee will have to decide whether Nashville can be considered an Eastern, Western, Central, or distinctly a Southern meeting. We had supposed that as it was so far removed from what was for so many years its chief Eastern centre that it would naturally fall to the East in 1898. We had learned of Boston being in the field for next year's meeting, but she will first have to win a decision that Nashville is a Western meeting. Nashville presents a new phase in Association affairs, and as it is distinctly a Southern meeting there must necessarily be a Northern section of our land yet untouched, and we are glad to note a new face in the field, no less a worker and hustler than our esteemed colleague, Dr. M. E. Knowles, of Montana; and he means to have heard at Nashville the claims of this wonderfully beautiful and important section of our country. Not to be lagging in the race, Colorado and Indiana are joining hands to take the meeting West next year. Surely no better signs of a healthy, progressive growth of our Association need be presented than this, and the friendly competition for place is a happy sign of the times. *There is room for all newcomers in the field.*

A WELL-MERITED APPOINTMENT.

Readers of the Journal will be pleased to learn that Dr. S. D. Brimhall, a graduate of the University of Pennsylvania, has recently been selected for field veterinarian by the Minnesota State Board of Health to assist Dr. Reynolds, and is already doing most excellent work for that State. Salary, $1800. The doctor is very kindly remembered in Philadelphia by the veterinarians who were in college with him, and by the veterinary faculty of the University as a conscientious student and a thorough gentleman.

The Minnesota State Board of Health and the State Experiment Station are now co-operating in field experiments with hog-cholera-serum. Dr. Peters is doing the laboratory work and Dr. Reynolds is planning and managing the field-work. Dr. Brimball is now in the southern part of the State engaged in this work.

THE WAY OF THE TRANSGRESSOR IS HARD.

Dr. H. E. Wand, formerly of Philadelphia, recently of Newtown, Pa., must surely have realized ere this "that the way of the transgressor is hard." His recent incarceration in the jail of Chester County, for the forging and raising of checks, the imposition of his worthless checks on his colleagues, and the securing of loans of instruments and not returning them, and many other misdeeds wholly unprofessional, have brought to him, and are sure to bring suffering to those who are so forgetful of self-respect and duty to their colleagues, and it should be a lesson to those who, unmindful at times of the danger, find themselves in perilous positions following a digression from the pathway of professional duty and ethics.

BETTER SAFEGUARDS NEEDED.

The localized outbreak of anthrax at Dubois, Pa., in August, which received considerable attention at the hands of the public press throughout the country, has been investigated and placed under control through the efforts of the Pennsylvania State Veterinary Sanitary Board. This investigation revealed the facts that this outbreak was from an importation of goatskins from China, and that there exist no barriers whatever to prevent these localized outbreaks at any time, inasmuch as no precautionary measures are taken to sterilize these hides or hair (used by plasterers) or any demand made upon the exporters to insure our people from the dangers incidental thereto. Would not the public press do a good work by calling general attention to the importance of this matter? Efforts similar to those so successfully used to prevent the introduction of Asiatic cholera would do much good in guarding our people against this fatal malady—anthrax.

WELL-DESERVED RECOGNITION.

It is gratifying to read in many foreign journals and publications reference to and acceptance of the results of original investigation as to the character and causes of many of the infectious and contagious diseases of live-stock made by such zealous and able workers as Drs. Theobald Smith and Cooper Curtice, of this country, and we are surely all very greatly indebted to these contributors in so great a measure to American veterinary literature.

Our Bureau of Animal Industry has been especially fortunate in having among its corps of workers Drs. Salmon, Smith, Curtice, Moore, Hassall, Kilborne, and others.

SHOULD NOW RECEIVE CONSIDERATION.

The recent experiences noted at Kirk Park, New York, and at Carnegie, Pa., trotting-tracks, where horses were directed by the judges to finish the race in the face of protests of the owners of said animals, who wished to withdraw them because of their unfit physical condition for such trials, and where in both instances death of very valuable animals followed, awakens a new thought and suggests a new field of employment for veterinarians. In all such cases an unbiased veterinarian, not connected with the track or interested in the races in any manner, should have been summoned and his decision in this matter been final. A careful physical examination of these animals would, no doubt, have determined their condition, and their lives have been prolonged had they not been compelled to finish the races. It would be well for all true lovers of horse-racing to consider the urgent necessity of providing for just such cases as these in the prompt selection of reputable and equipped veterinarians to decide matters, and thus render justice to all concerned, without imperilling valuable property unnecessarily.

MARRIAGES.

On Tuesday, August 31, 1897, Dr. Jacob Helmer and Miss Martha E. Shoemaker were married at Syracuse, N. Y. Dr. and Mrs. Helmer will be at home at No. 311 Spruce Street, Scranton, Pa., after October 1st.

REVIEWS.

Bulletin No. 64, of the Virginia Agricultural Experiment Station.

This bulletin is prepared by Veterinarian E. P. Niles, and gives a concise account of the parasitical diseases of sheep in Virginia. As these lower forms of life cause very heavy losses by death and shrinkage in value to the sheep-owners and raisers, it is of the utmost importance to spread general information about them, so that precautionary measures may be adopted, so far as possible, to lessen the burdens to flock-owners. Veterinarians will find in many of these bulletins very useful information about these forms of diseases, and they should, as far as possible, possess them, and thus keep better posted on the nature, extent, and better methods of dealing with these scourges.

Department of Agriculture Reports. The Twelfth and Thirteenth Annual Reports of the Bureau of Animal Industry.

This volume contains so much of interest to the veterinary profession, so much of importance to the welfare of the live-stock interests of our country, that we had hoped ere this to have had it more thoroughly reviewed by one of the staff contributors to the Journal.

A glance at its contents will give at once an impressive idea of the great scope of work of the Bureau, and its well-trained experts afford a valuable and complete review of the existing contagious and infectious diseases of live-stock during the past two years, with a *résumé* of the progress made in their better control and eradication. The live-stock interests of our country have had much in the past to thank the Bureau of Animal Industry for, and the real value of its investigations and work grow more forceful each year. To this department, which gives so large a return of real value to those of our people engaged in agriculture, there should be the freest helping-hand given to enlarge and make more effective the benefits to be derived from this work, which appeals so directly to the welfare of 55 per cent. of our people and indirectly to the entire 73,000,000 of people within our borders.

EXERCISES IN EQUINE SURGERY. By P. J. CADIOT, Professor of the Alfort Veterinary School. Translated by A. W. BITTING, D.V.M., Veterinarian to Purdue University and Agricultural Experiment Station. Edited by Prof. A. LIAUTARD, M.D., V.M., Dean of the American Veterinary College. Published by William R. Jenkins, No. 853 Sixth Avenue, New York City.

WE wish that such an act would become a fixed custom in our country as the one performed by Dr. A. W. Bitting in presenting as a thesis at the close of his college career this worthy translation of *Exercises in Equine Surgery*. The veterinary profession and English veterinary literature would be so greatly enriched by such additions as this as soon to lead to more of our own very able men becoming writers. This work, so well known and highly appreciated among the students and busy practitioners of France and many parts of Europe, is so complete and so valuable in the field it covers that no American veterinary surgeon will want to take up any of the many equine surgical operations without reviewing for a moment the ever-thoughtful suggestions and reminders contained in this book. Fully illustrated, and added to by the editor, Prof. A. Liautard, it comes to us in a thoroughly acceptable style and attractive form, made so by that long-experienced veterinary publishing house of W. R. Jenkins, of New York, that has produced from its presses so many valuable contributions to veterinary literature. We are sure this will prove one of the most sought-for books ever issued by this house.

The Veterinary Blue-Book of New York County and of veterinarians in the United States is now announced for publication in October next. Any changes of addresses or positions are asked for by the Chairman of the Publication Committee, Dr. Rush S. Huidekoper, who may be addressed until September 30, 1897, at Weaver Avenue, Newport, Rhode Island.

The Chicago Live-stock Exchange annually expend $1800 to inspect and control actinomycotic cattle coming into their yards.

CORRESPONDENCE.

EDITORS JOURNAL OF COMPARATIVE MEDICINE, ETC.:

It seems to me that one of the requisites for the attainment of that high standing which all devotees of the profession of veterinary medicine desire for it is a uniformity of the degrees conferred by the schools.

It is doubtless of value to the practitioner of human medicine that almost everyone knows the significance of the M.D. which the graduates in that profession are permitted to attach to their names. The graduates in veterinary medicine should be accorded a similar benefit.

At this time there are in America almost as many varieties of degrees as there are colleges. Only the specialist knows the import of the letters which are appended to the name of the graduate of veterinary medicine. This is unfortunate.

It is not my purpose to enter into a discussion of ways and means, but to leave the matter with the profession, begging leave to suggest that it would be a fit topic for consideration at the meeting of the Association at Nashville in September.

Yours sincerely,

JOHN J. REPP.

University of Pennsylvania.

CONTROL WORK.

Minnesota. The State Board of Health, under the directorship of Dr. M. H. Reynolds, has just issued some placards especially designed to curtail the ravages of hog-cholera, glanders, and such diseases as are dangerous to the public welfare. They are to be used as a quarantine against the spread of the infection and prevent the introduction of other hogs or horses on the infected premises until after the pens and stables have been subjected to a thorough disinfection in a way satisfactory to the local boards of health, and, in the case of hog-cholera, no other hogs are allowed on the premises until six months after the last hog has died or recovered.

The authority quoted on the placards is chapter No. 233, laws of 1897: "Authority is hereby given to the State Board of Health and to the several local boards of health of the towns, villages, and cities of this State to take all steps they may severally deem necessary to control, suppress, and eradicate any and all contagious diseases among any of the domestic animals in this State, and to that end said boards are hereby severally empowered, within their respective jurisdictions, to quarantine any domestic animal which is infected with any disease or which has been exposed to infection therefrom. Any person violating any provision of this act or any rule or regulation made by the State Board of Health, or any order made by any such board under the authority hereof, shall be guilty of a misdemeanor, and be punished by a fine of not less than $25 or more than $100, or by imprisonment for not less than thirty or more than ninety days."

There has also been a special notice card issued for the safety of owners, to create a private quarantine against carelessness in neighbors or others during the prevalence of an epidemic.

The rules for controlling hog-cholera in Minnesota are as follows:

Rule 1. The following counties were more or less generally affected with hog-cholera during 1896 and 1897 up to date, and are hereby declared an infected district and designated as district "A:" Brown, Watonwan, Martin, Freeborn, Faribault, Blue Earth, Nicollet, Le Sueur, Waseca, Hennepin, and Ramsey, excepting the State Fair grounds. This district is subject to such modifications as the State Board of Health may see fit to make from time to time.

Rule 2. All that portion of the State not included in district "A" shall be known as district "B."

Rule 3. Shipment of swine from any portion of district "A" to be unloaded in district "B," and all other movements of swine, whether they be driven on foot or hauled in wagons from any point in district "A" into district "B," are hereby prohibited.

Rule 4. All shipments from points outside of this State to be unloaded within this State are prohibited, excepted as provided in Rule 5.

Rule 5. Hogs shipped from any other State into Minnesota must be crated, shipped in other than stock-cars, and accompanied by a certificate signed by a veterinarian or physician that they are free from the disease when shipped and come from an uninfected district.

Rule 6. Hogs shipped from point to point in district "B" must be crated and shipped in other than stock-cars.

Rule 7. All outbreaks of suspected hog-cholera in district "B" and in such places as may be deemed practical in district "A" shall be rigidly quarantined.

Rule 8. Shippers of hogs from point to point in district "A" shall be required by the railroad agent to sign a statement to the effect that such hogs are for slaughter only, and within five days after reaching destination. Railroad agents should preserve all certificates demanded by these rules for the protection of their companies in case any shipment of hogs should be followed by an outbreak of disease.

Rule 9. All exhibitions of swine at county fairs in district "A" are hereby forbidden.

Rule 10. All cars in which hogs are shipped into or through this State shall be constructed so as to prevent the escape of manure and litter.

These rules shall go into effect August 20, 1897, and continue in force until altered or annulled by the State Board of Health.

N. B.—These rules do not interfere with any shipments of swine for slaughter into any stockyards of the State that may be located within district "A," and these rules are so framed that the large markets of the State are located within district "A."

Statistics recently computed by the Pasteur Vaccine Company relative to the vaccination of cattle against blackleg in this country for the two years ending June 30, 1897, covering some 75,000 head of cattle, among which the previous annual mortality had averaged 10 per cent., show that since the adoption of the use of vaccine the mortality has been reduced to one-third of 1 per cent., resulting in a saving, on a conservative estimate, of $100,000. This work has covered sections of South Dakota, Wyoming, Nebraska, Colorado, Kansas, and Texas, and corroborates the results obtained in Europe prior to its introduction in this country. As this is the only remedial hope for these animals, situated as they are, remote from environments that would permit of successful treatment in times of enzoötic and epizoötic outbreaks—and even this plan of protection is accomplished only by arduous labor and difficulties—it is very gratifying to know that we are rapidly attaining effective measures for even the saving of these yearly losses.

The Kentucky authorities are looking after the stud licenses in that State. This is regulated by the highest fee received for service.

LEGISLATION.

California. This State has issued a little pamphlet giving the State pure-food law which passed in 1895; also the ordinance concerning contagious diseases, which is entitled "An ordinance concerning contagious or infectious diseases in animals and the sanitary conditions of dairies, slaughter-houses, markets and other places from which the food-supply is distributed; regulating the sale of cheese, butter, milk, and other products of cattle; providing for the inspection and branding of dairy cattle within the county of Santa Clara; the condemnation and killing of cattle affected with a contagious or infectious disease; prohibiting the disposal of cattle so condemned; prescribing certain duties of the veterinary inspector and health officer of that county, and providing for a punishment for a violation of its provisions." The details of this ordinance provide that the inspector is authorized to inspect all animals within the limits of the county of Santa Clara, and if necessary to condemn such animals if they are afflicted with any disease injurious to human life. After he has done so, he has the right of demanding those animals for destruction, and it shall be considered a misdemeanor for the owner to refuse in any way to accede to his request. The inspector also overlooks the dairies and all stock used for food-consumption. It is also necessary under this ordinance for all receptacles intended for the use of dairy products to be labelled concerning the contents, and also whether the dairy from which it came has been inspected or not. An ordinance entitled "An ordinance to regulate the private inspection of cattle with a view of ascertaining their pathological condition within the county of Santa Clara, State of California," is also included in this pamphlet, and relates to the inspection of cattle by other than the veterinary inspector. The tuberculin must be submitted to the veterinary inspector, however, before the same can be used. The inspection must be held with the knowledge of the inspector, and the notice must be in writing and served at least forty-eight hours before the day stipulated, and he is compelled to be present either in person or by deputy and to brand the cattle so inspected. He has the privilege of rejecting the inspection if he deems it advisable to do so. The ordinance creating the office of veterinary inspector and health officer, and prescribing his powers and duties, provides for the appointment of this officer, who holds his office at the pleasure of the supervisors. He is empowered to remove nuisances and to look after the inspection and sanitation of such affairs as come within his jurisdiction.

EXAMINATION QUESTIONS.

OHIO STATE BOARD OF EXAMINERS, 1897.

1. Name the muscles surrounding the femur of a horse, give their point of attachment and their point of insertion, and state their action; also state what muscles are inserted to the superior and inferior trochanters. 2. Describe the pneumogastric nerve (nervus vagus). 3. Name and describe the metatarsal bones of an ox (from tarsus to toe). 4. Describe the stomach of a horse and give its position when full of food. 5. Describe the process of digestion in a ruminating animal; follow the food from mouth to anus, and state the changes it undergoes. 6. What forces are acting in effecting inspiration and expiration? 7. Describe the characteristic histological structure of the kidneys. 8. Give the natural history, as far as known, of sclerostomum equinum (strongylus armatus); state how, and in which way, it produces injury to its host and may become the cause of disease. 9. State the source, and explain the cause, of the development of abnormal degrees of temperature in feverish diseases. 10. Name, and briefly describe, three poisonous umbelliferæ growing wild in the United States. 11. What is "heaves?" Give a definition. 12. Describe the essential symptoms and also the characteristic morbid changes of (contagious) pleuro-pneumonia of cattle, particularly state the differences between this disease and bovine tuberculosis. 13. Give a brief description of distemper (also called strangles) of horses; give all the characteristics, state the cause or causes, and briefly delineate a rational treatment. 14. If in a slaughtered animal, a steer for instance, you should find that in the bones, particularly in the femur and humerus, the narrow and the more porous parts abnormally red, and the marrow spaces and canals enlarged, what would be your diagnosis? Would you condemn the meat or not? 15. Give the characteristic symptoms of spavin, and state the means by which a diagnosis can be secured. 16. Give the various methods of treatment applied to an umbilical hernia; state your preference and give reasons therefor. 17. How would you treat

an inveterate or neglected case of fistulous withers? 18. State the effect of tartar emetic upon our various domestic animals. 19. Describe the symptoms of arsenic-poisoning, and give the treatment you would apply if called in time. 20. State the pharmacognostic properties of aloes, the essential difference between the principal kinds in the market, and their effects upon our domestic animals, particularly horses. 21. What is a bacterium? What a bacillus? What a micrococcus? What is meant by a pathogenic bacterium, and what by a saprophytic bacterium? What by an aërobic, and what by an anaërobic bacterium? 22. What different means may be employed to secure the diagnosis of glanders, and which is the surest and most reliable? 23. How would you proceed in a case of obstetrics if there are twin calves, one with a posterior and the other with an anterior presentation, and both equally far advanced? 24. If a cow has not cleaned in due time after calving, what would you do and how would you proceed to remove the afterbirth? 25. How would you shoe a horse with pumiced feet and convex soles? 26. Suppose you should be called upon to select a saddle-horse for a wealthy gentleman weighing 175 pounds, a good horseman, and desirous of getting a horse that possesses speed and endurance, what kind of a horse would you select? State particulars (so-called points) you would demand. 27. At what age appears the roundish form (4½ to 4½) in the friction-surface of the middle teeth of the lower jaw of the horse, provided the incisors are of normal length? 28. Suppose a hog is butchered and is found to be trichinous, all the trichinæ are encysted and a deposit of lime-salts has taken place in some of the cysts, while others are not only free from lime-salts but also from fat-cells at their poles, how would you account for the difference, and how long must it be since the animal became infected? 29. Describe the characteristics of a thoroughbred horse. 30. Describe the characteristics of a short-horned cow.

Veterinarian Knowles, of Montana, fully alive to the various duties of his position, has been investigating the cause of death of a number of cattle and sheep, and finds larkspur or wolfsbane, a species of aconite, sometimes called monkshood, botanical name delphinium. In a circular letter bearing upon the subject he forcibly reminds the interests involved that owners of live-stock and organizations connected therewith must lend a helping and encouraging hand in this work for the best results.

SOCIETY PROCEEDINGS.

COMING MEETINGS.

THE PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION will convene at Franklin, Pa., September 21, 1897.

Mayor Jobson, of Franklin, Vice-President of the Association, will welcome the members and delegates, and confer upon them the freedom of the city.

Every active veterinarian in Pennsylvania should attend this meeting.

All should come and hear President Rayner's address, with references to the early history of the profession in the Keystone State.

State Veterinarian Pearson will speak upon the future work of the profession, and how far legislation may conserve these interests.

Secretary Rhoads will, in his report, outline the work done, the duties of the members, and how far they will contribute to the success of his administration by their aid.

We have heard the name of Dr. Francis Bridge suggested for Treasurer, and a first-class officer he would make, to succeed our late Treasurer, Dr. John R. Hart.

Reports of interesting and instructive cases will be afforded those present by Drs. Noack, Harger, and Allen.

Papers of great practical interest by Drs. Jobson, McCray, Pearson, and Hoskins will furnish material for much thought.

There are a large number of good veterinarians in the northwest, central west, and southern tier of counties whose names should be enrolled as members, and they should be at Franklin on the 21st to aid in the work for a stronger organization.

Every arrangement has been completed by the local committee: a suitable hall, special hotel accommodations, visits to the great breeding establishments near Franklin—everything to make you welcome and add to your enjoyment.

These semi-annual meetings afford us the only opportunity of visiting sections of our State where we can enlist strong sectional support and enlarge our membership; for this reason, every old member should be at his post and contribute his share of the work.

There are not enough members yet who never miss a meeting. This number is composed of the busiest men in the profession, and you should be among them. It is a roll of honor.

"Why we visit Franklin?" may interest and afford you some food for afterthought and consideration.

You want to go to Franklin and get acquainted with the new officers. You want to be in touch with Secretaries Rhoads and Helmer.

The JOURNAL can only tell you in October a brief part of the work at Franklin. You want to hear it all, and add your mite.

THE NEW YORK STATE VETERINARY MEDICAL ASSOCIATION will convene its eighth annual meeting September 14th and 15th. Are you going? Syracuse, N. Y., has been selected.

The programme is more than interesting, and contains names that attract by their reputation.

Dr. Roscoe R. Bell will deliver an interesting paper on "Infectious Catarrhal Fever of Horses."

Professor James Law will suggest how to best prepare contagious products for shipment.

Dr. W. L. Williams, whose frequent contributions to the JOURNAL are always interesting, will read a paper on "Caudal Surgery."

The rest of the programme is equally as good, and all those who attend will find themselves well entertained.

It is incumbent on every member to give voice to his opinions in the revision of the By-laws, especially those touching the conditions for membership and the increasing of the annual dues.

Two questions of interest are to be presented for discussion: "That the Department of Agriculture Should Have Full Control of the Suppression and Eradication of Tuberculosis and Glanders," and "Would it be Practical and Economical to Create and Maintain the Office of State Veterinarian?" Such questions are vital, and should have the careful consideration and expression of every New York Veterinarian.

The excuse "too busy" is not worth while considering when it comes to association meetings. The most interested are the busiest practitioners, and they are the ones who always find time to attend.

Secretary Morris has labored unceasingly to crown the meeting with success, and he should be aided by every member of the Association. Your interest can be best assured by your presence at the meeting; your aid can be best volunteered by your contributions, however small, to its success.

THE KEYSTONE VETERINARY MEDICAL ASSOCIATION, of Philadelphia, will inaugurate its winter series of meetings on the evening of September 14, 1897, at the hall, northwest corner of Broad and Filbert Streets.

It is expected that Dr. James Johnston will address the meeting on the subject of laws for the compulsory examination of food-products, and what are found as evidences of its need by meat-inspectors.

Dr. James T. McAnulty will briefly outline the future work of the school of farriery.

Dr. Pearson will give a five minutes' talk on the colleges and their sessions for 1897.

Report from the delegates to Nashville will be presented and be fruitful of much interest.

What we hope for at Franklin, Pa., a week later, will be of additional importance. The selection of delegates for this meeting will be decided.

Many other matters and plans will be considered, all of interest to every local veterinarian.

You will be welcomed, whether a member or not.

U. S. V. M. A. With Boston, Mass., Helena, Mont., and Omaha, Neb., in the field for the meeting of 1898, surely there will be rivalry enough to make the race interesting and entertaining; surely the most sanguine members of ten years ago could hardly have hoped for such progressive changes in the National Association. So much for good officers. What will the next ten years' progress exhibit? Who will prophesy?

VETERINARY ASSOCIATION OF THE DISTRICT OF COLUMBIA.

THE fourteenth meeting of the Association was held at Elks' Hall, No. 1006 E Street, N. W., July 31st, at 8 P.M. In the absence of the President, the Vice-President, Dr. Buckingham, called the meeting to order. The following members answered the roll-call: Drs. Barton, Buckingham, Turner, Walmer, and Robinson, C. B. Dr. Yetton, an applicant for membership, was also present. A letter was received from Dr. C. F. Hadfield expressing regrets that he would be unable to attend the meeting.

The Committee on Credentials made a favorable report on the applications of Drs. Salmon and Yetton for membership, and on motion of Dr. Robinson they were elected members of this Association.

The Legislative Committee reported that no active measures had been taken regarding the bill to regulate the practice of veterinary medicine in the District of Columbia at the extra session of the Fifty-fifth Congress, for obvious reasons, but that a vigorous effort would be made at the coming session in December.

The subject of rabies and its existence in the District was discussed in its many phases, and the Association resolved itself into a committee of the whole, and drafted the following resolutions, which were ordered to be forwarded to the Commissioners of the District of Columbia:

WHEREAS, This Association recognizes rabies as a disease, and that it exists at present in the District of Columbia among the lower animals and man, and that we as a body have recognized this enzoötic disease in a large number of animals, particularly dogs;

WHEREAS, We believe this disease is increasing in this District, and while we recognize that there is no cure for it after the disease is developed, we firmly believe that the disease can be prevented by proper sanitary measures; therefore, be it

Resolved, That this Association recommends to the Honorable Commissioners of the District of Columbia that all dogs running at large during the months of June, July, and August, be required to wear a proper muzzle, and that all unmuzzled dogs be considered dangerous to the health and welfare of the public, and that they be treated as unlicensed dogs and impounded, and that a copy of these resolutions be forwarded to the Honorable Commissioners of the District of Columbia.

Dr. Robinson reported a very interesting case of rabies affecting a mule. The points of interest in the case were the vicious attacks by the teeth made on anything which it encountered, and the fact that the animal moved in a straight line from one side of the corral to the other.

Dr. Buckingham cited several cases of rabies which had existed among the wolves at the Zoological Garden.

Dr. Barton reported several cases of dumb rabies.

For the next meeting (September 25th) it was agreed that the subject of tuberculosis should be discussed in its various forms, each member discussing it in one of its peculiar relations to the public health.

The meeting was then adjourned.

J. P. TURNER,
Secretary.

CHICAGO VETERINARY SOCIETY.

JULY 8, 1897, owing to a quorum not being present, no meeting was held.

August 12, 1897, meeting called to order by President Walker. On motion, roll-call was dispensed with. Seventeen members were present. The minutes of the June meeting were read and approved. The application for membership of Dr. C. G. Gruner was presented, and after examination by the Board of Censors, Dr. Gruner was elected to membership.

The Treasurer's report showed $24.32 in the treasury. No report from the Secretary.

The Legislative Committee (Dr. Hughes, chairman) reported that the committee called upon Dr. Reynolds, of the City Health Department, in regard to establishing a meat- and milk-inspection in this city, which would be under the control of veterinarians. The committee was excellently received by Dr. Reynolds, who referred the committee to the Civil Service Commission. The latter, after hearing the desires of our committee, fell earnestly into our ideas, and promised that positions that should be filled by veterinarians should be filled by no one else, and also that the present quack city veterinarian to the Police Department would not continue to hold his position longer than for them to find an eligible practitioner. And further, that within three weeks an examination of members of this Society desiring city positions would be held for the purpose of finding competent men.

Moved by Dr. Henderson, seconded by Dr. E. L. Quitman, that the Secretary write the Civil Service Commissioners and ascertain the exact date of such examinations, and also sincerely thank them for their kindness in their reception of our committee and to our Society as a whole; voted and carried.

Motion by Dr. E. L. Quitman, seconded by Dr. Hawley, that this Society hold its November meeting on one of the days of the annual meeting of the Illinois State Veterinary Medical Association, and that the Literary and Publication Committee produce at least two papers for presentation to the Society on such occasion; voted and carried.

Motion by Dr. Robertson, seconded by Dr. Allen, to dispense with the regular order of business (no paper being presented), and to hear reports of unusual cases from any member present who may desire to state same.

Dr. E. L. Quitman related two cases to show the efficacy of potassium iodide and iodine in paralysis:

CASE I.—Cocker spaniel, male, five or six years old; chronic constipation present. Paraplegia symptoms. These were so severe that the hindparts were dragged. A cathartic was given, with good responsive action, but no improvement of the paralysis. Strychnine in doses of one-ninetieth to one-thirtieth grain were given for two months; no improvement. Iodide of potassium and resublimed iodine were given, with great improvement in eight or nine days, and an entire cure in three weeks.

CASE II.—Horse down in stall and unable to rise at first; later with aid stood up, but was unable to handle hindquarters properly. Strychnine was given, with no improvement. The case became worse. Would walk three or four steps and fall. Substituted the following: ℞.—Iod. pot., ʒj; iod. resub., gr. xv. Sig.—M. in sol., t. i. d.; and blistered the spine. Entire recovery in three weeks.

Moved by Dr. Hughes, seconded by Dr. Campbell, that the Society give a vote of thanks to Dr. Quitman; carried.

Dr. Hughes reported that the potassium-iodide treatment was recommended in the Royal College very highly, and that he had made successful treatment with it when strychnine had failed.

Dr. Robertson mentioned a case pending in court where a great controversy took place over the recovery of a supposedly stolen dog. Great diversity of opinion by experts was in evidence as to the dog's age (the age being conclusive as to ownership), and the Doctor wanted to know if any of the members present think the age of a dog can be determined by the teeth after the age of one year.

Dr. Hughes said that at the Royal Veterinary College students were expressly instructed not to try to tell the age by the teeth, as it was very risky and, in Dr. Hughes's opinion, a very doubtful proceeding; for his part, he would rather depend on the actions, antics, and appearance of the different breeds, rather than by the teeth.

Dr. Robertson held that in his opinion the age could not be told after one year, and never omits, when asked, to say that he does not know the age and cannot tell.

Dr. White stated that in his opinion dogs with even jaws can be approximately told after experience and careful study up to five years old.

Dr. Worms relies on the tartar and color of the teeth; he thinks more and more tartar and more yellowness, especially of the molars, occur year by year, and careful observation of this is some indication.

On motion, the regular order of business was recalled, and on motion the meeting adjourned.

L. CAMPBELL,
Secretary.

COLORADO STATE VETERINARY MEDICAL ASSOCIATION.

THE regular semi-annual meeting was called to order at Denver by Dr. Sol. Bock, President, in the chair, July 22, 1897. The following members answered to roll-call: Drs. Solomon Bock, F. M. Hunt, Emil Pouppirt, of Denver, and Dr. D. P. Frame, of Colorado Springs. Dr. Charles Lamb, of Denver, came in later. Dr. M. R. Trumbower, of the U. S. V. M. A., was present as a welcome visitor. Minutes of the last meeting were read and approved.

Dr. Frame made a verbal report of the progress and result of the proposed veterinary bill in the last Legislature. The bill was reported favorably by the committees of both branches of the Assembly, and was on the calendar for passage, but was not reached in time for action.

The applications for membership in the Association of M. J. Dunleavy, M.D.C., of Chicago Veterinary College, and Dr. E. Bovett, were presented by Dr. Bock, and seconded by Dr. Hunt. They were elected to membership.

A letter from Dr. A. T. Peters, of Lincoln, Neb., was read, requesting the influence of this Association in securing the next annual meeting of the U. S. V. M. A. in the West. The Secretary was directed to reply to this, assuring Dr. Peters of our support.

Dr. E. Bovett came in and was introduced to the members present.

Dr. Pouppirt nominated Dr. Lamb for Treasurer of the Association; seconded by Dr. Hunt. Dr. Lamb was elected Treasurer.

Dr. Charles Gresswell, the regular essayist for this meeting, being absent, the members indulged in a general discussion of rare and interesting cases, with treatment of the same, and in this way spent a very enjoyable and profitable afternoon.

The next meeting will be called January 4, 1898. Adjourned to meet at that time.

D. P. Frame, M.D.C.,
Colorado Springs, Col. Secretary.

AMONG THE COLLEGES.

UNIVERSITY OF THE STATE OF NEW YORK.

The regents of this college include Hon. Frank S. Black and T. L. Woodruff this year, in place of Levi P. Morton and Charles T. Saxton of last year. Chester Lord is also on the list as succeeding William L. Bostwick of 1896. Frederick A. Putnam has been dropped from the Board of Censors. Dr. Wilfried Lellman has accepted the post of professor of materia medica in addition to the professorship of parasites and parasitic diseases, and Dr. Charles B. Fitzpatrick has been included in the faculty as lecturer on bacteriology. Drs. Goldstein, Cook, and Horpel are no longer among the faculty. For matriculation a student must present a regents' veterinary student certificate, representing at least forty-eight academic counts; a baccalaureate degree from the academic department of a college or university of recognized standing; an academic diploma granted by the regents of the University of the State of New York, or satisfactory proof of having done work considered by the regents as equivalent to the above. Those matriculants who cannot fulfil all the above requirements must pass the regents' examination before the beginning of the second year. Glass's translation of Müller's *Diseases of the Dog* has been added to the list of text-books of this college.

HARVARD UNIVERSITY.

The vacancy in the Governing Board for 1900 has been filled by the selection of George Frisbie Hoar, LL.D., Worcester. Dr. Ogden is one of the recent instructors in chemistry. One of the unusual features at Harvard is that in the course the clinical exercises are given by different instructors, thus doing away with the serious objections arising from the instruction being given by one man, however good he may be.

LOUISIANA STATE UNIVERSITY.

The announcement for 1897–'98 of the Louisiana State University and Agricultural and Mechanical College at Baton Rouge informs us of the return of Dr. W. H. Dalrymple to the chair of veterinary science. We note the existence of a commodious veterinary hospital in connection with the school, and that veterinary science is a part of the curriculum of the junior and senior classes in agriculture, embracing the anatomy, physiology, and pathology of the different systems of equines and bovines as well as diseases, obstetrics, orthopedic surgery, dermatology, and helminthology.

THE UNITED STATES COLLEGE OF VETERINARY SURGEONS.

The announcement for this year shows a change in the chair of dental surgery, Dr. William E. Yetton having succeeded Dr. Andrew C. Seacord in this department, and also on the hospital staff. The college has also very materially extended its list of qualifications for the degree of fellowship. In addition to the previous requirements, the applicant, if a graduate from a medical school, must have done some research-work in comparative medicine which has been of value to the veterinary world. He must submit a thesis on a new subject to have sufficient merit to be accepted by the college, and to be used by them in the compilation of a work on veterinary science. He is required to fill out an application blank, which will be furnished on application. The sum of ten dollars as an initiation fee will be charged, the money to be used in paying for the publication of these theses and the compilation of them into book-form, each Fellow of the college to receive a copy free of charge. This is done that the college may be able to compile a work that will be of great use to the profession, in that it hopes thereby to secure reports of practical experiments instead of theories which prove of but little consequence when applied to practical work.

VETERINARY DEPARTMENT, COLUMBIAN UNIVERSITY.

The Hon. Edwin Willits has been dropped from the Faculty and Drs. Victor A. Norgaard and David McMaster added; also Dr. William H. Bolyn. Dr. Glass's translation of Dr. Müller's *Diseases of the Dog* has been added to the list of text-books.

KEEP YOURSELF POSTED ON CURRENT EVENTS.

Twenty-eight horses have recently been destroyed in Indiana suffering from glanders, said to be from cheap horses brought in the State and sold to farmers. The State Live-stock Sanitary Commission are investigating the condition of horses in several localities.

Another one of the schemes recently adopted to give notoriety by a veterinary surgeon in a large city consists of a large, illuminated blotting-pad, with the picture of an ambulance and flying horses. What next?

In the Massachusetts volunteer militia regulations there is a clause referring to the duties of veterinary surgeons of each brigade, which reads as follows: "They will thoroughly inspect all horses reported for duty, and they are authorized to reject horses unfit for service and order that they shall not be returned for allowance on bills or pay-rolls. If possible, they will inspect the horses for artillery and cavalry prior to their leaving their home posts. If it is necessary, in order to accomplish this, to have the duty performed the day before camp, the veterinary surgeons will perform this duty on those days and be returned on pay-rolls for extra duty."

Lieutenant-colonel and Medical Director Clark, of the First Brigade, in his report (Public Document No. 7, 1897) to the Adjutant-General of the Massachusetts volunteer militia, speaks of the hospital facilities afforded by First Lieutenant and Veterinary Surgeon Osgood for the accommodation of sick and disabled horses used for military purposes. Surgeon-General Blood further recommends for the benefit of the service that Lieutenant F. H. Osgood, veterinary surgeon of the First Battalion and Artillery, and Lieutenant Austin Peters, First Cavalry, should be promoted to the rank of captain and attached to brigade headquarters.

Lincoln, Nebraska, is building a sheep-dipping vat capable of treating 10,000 a day. A triple swim a distance of ninety feet and a two-minute period in the dip, with very ample covering sheds to dry off in, are the complement of requirements. Sheep-owners will have their choice of any of the approved sheep-dips.

Yvette, the pet cocker-spaniel bitch of Mrs. Finlay Anderson, the novelist, is dead. Her owner will prepare for print a biography of the animal, that her memory may be better preserved among those who had not the privilege of her acquaintance.

Alaska will have established shortly within its borders an agricultural experiment station. The sum of fifteen thousand dollars has been appropriated for this under the Hatch law establishing these stations.

An important contribution at Nashville will be by Dr. Veranus A. Moore, of the Bureau of Animal Industry, on "A Cause of Death among Swill-fed Pigs, based upon Experiments." As this is a very important subject among the boards of health of all large cities, it is sure to awaken a deal of interest among all city inspectors.

Boards of health having veterinarians on their staff of officers should see that these members be sent to the annual conventions of the United States Veterinary Medical Association, where are considered so many vital questions relating to the field of their work.

Draught-horses in Chicago sold in August as high as $190 a piece. They are reported scarce, and orders are difficult to fill. An Ohio newspaper was shown the editor of the JOURNAL in August, quoting the sale of a heavy draught-horse for $146.50, which could have been bought by a dealer at less than $100 sixty days prior.

The *Weekly Picayune*, of New Orleans, of August 26th, gives a hearty welcome to the first meeting of the U. S. V. M. A. in the South. It goes farther in the education of the public of our mission to the South in a brief review of the work it is doing, its high standing among the learned professions, and reference to the excellent class of professional members of which it is composed. Surely with such greetings as this we must all feel a high sense of honor when numbered among its membership.

The department of civil service will conduct examinations on meat-inspection on October 25th at the following places: Montgomery, Alabama; Little Rock, Arkansas; San Francisco and Los Angeles, Cal.; Denver, Col.; Hartford, Conn.; District of Columbia; Jacksonville, Fla.; Atlanta, Ga.; Chicago and Peoria, Ills.; Indianapolis, Ind.; Des Moines, Iowa; Wichita, Kansas; Louisville, Ky.; New Orleans, La.; Portland, Maine; Boston, Mass.; Detroit and Grand Rapids, Mich.; Duluth and Minneapolis, Minn.;

Vicksburg, Miss.; St. Louis and Kansas City, Mo.; Helena, Mont.; Omaha, Neb.; Concord, N. H.; Albuquerque, N. M.; New York, Albany, and Rochester, N. Y.; Wilmington, N. C.; Cincinnati and Cleveland, Ohio; Oklahoma City, Oklahoma; Portland, Ore.; Pittsburg, Philadelphia, and Harrisburg, Pa.; Providence, R. I.; Charleston, S. C.; Sioux Falls, S. D.; Nashville and Knoxville, Tenn.; Fort Worth, San Antonio, and Houston, Texas; Salt Lake City, Utah; Burlington, Vt.; Richmond, Va.; Seattle, Wash.; Parkersburg, W. Va.; Milwaukee, Wis.; Cheyenne, Wyo.

Applicants should exercise the utmost care in specifying the date and place selected for examination, and should make no requests for changes in the schedule. All applications must be on file in the office of the commission on the proper blank forms at least ten days prior to the date selected for examination.

Dr. George Hopkins, of Cleveland, Ohio, reports successful results in tetanus with serum prepared from the blood of goats made immune to tetanus by successive inoculations of the tetanus bacilli.

Formalin is highly commended for the treatment of ringworm. As these are often very annoying in horses and cats, we hope some of our readers will give it a trial and report their experiences.

The use of Sanmetto in azoturia is very highly extolled by Veterinarian F. J. Bliss, of Earlville, Ills., who reports its use in over fifty cases in various stages of the disease with uniformily good results. Its prompt action in cleaning up the characteristic color and offensive odor and abatement of the alarming symptoms of the disease are especially noted, with marked relief to the animals.

At a meeting of the French Academy of Medicine, held in Paris on the 27th of July last, Dr. Nocard stated that the Pasteur laboratories in Paris had dispensed 7000 doses of 10 c.c. each of tetanus antitoxin, which had been used for the preventive treatment of 3100 animals located in districts where tetanus was endemic. Not a single death from tetanus occurred. One horse alone, treated five days after the infliction of the wound, had tetanus, but the disease was mild. During the same time the same veterinarians had observed 259 cases of tetanus in animals that had not been treated preventively with the antitoxin. Dr. Nocard states that there is no doubt of the utility of preventive injections of tetanus antitoxin in veterinary practice. The treatment of tetanus, when once thoroughly declared, is difficult and uncertain. Its prevention, therefore, is of prime importance.

In 1896 the United States exported 491,565 head of sheep, nearly four times the number exported in 1889. Exports of fresh beef, hams, and oleo have all increased in very great proportions.

Illinois has a lien law for registered stallions.

The Government inspection of stallions used for breeding purposes is still being agitated and gaining fresh adherents. The plan suggested that their inspection be carried on by State Veterinary Sanitary Boards or State Veterinary Associations under Government direction seems to meet with much favor.

Providence, Rhode Island, will have a horse improvement association, among many other leading attractions, to stimulate interest in horse-breeding and the ownership of handsome animals.

Two of Erie's leading veterinarians recently came to blows, followed by an arrest and prosecution, the outgrowth of some examinations made of cattle in that district for tuberculosis.

The Chicago Light Cavalry is the latest addition to mounted troops of the "Windy City." Surely the needs of horses are multiplying, and with the higher prices daily prevailing the signs of the times are more promising.

The Mississippi Experiment Station recommends the following application for the homfly: Two parts of fish-oil or cottonseed-oil and one part of pine-tar. Reapply with a brush every three to six days.

Tennessee and Arkansas cattle have been denied admittance to Illinois, on account of Texas fever, by proclamation of the Governor of Illinois.

A "Horseman's Protective Association," with principal office in New York, was incorporated last week at Albany. The objects are the fostering and protecting of the interests of horse-owners, trainers, and jockeys; the improvement of the breeds of throughbred horses through trials of speed and otherwise; the settling of differences between members, and the promotion of more enlarged and friendly intercourse among all classes engaged in owning, training, racing, or riding thoroughbred horses.

Dr. N. D. Daddy, of Loett, Indiana, is quoted as having proven conclusively that for driving horses clover hay is as satisfactory for an exclusive diet as it is for work-horses.

A practical device invented by Mons. Zimmerman, of Paris, France, for the prevention of runaways, has already become a familiar sight on the boulevards of that city. The apparatus is a woven-wire muzzle which extends over the horse's face, just covering the nostrils, and is connected with the reins by stout straps. When the horse becomes excited and attempts to run away the reins are pulled tight, thus causing the muzzle to close over the nostrils and mouth, producing immediate suffocation. A number of vicious horses were experimented upon with the device, and in every instance the animal was almost instantaneously stopped. The only real objection to the apparatus is its unsightliness.—*Spirit of the Times.*

A duty has been imposed on Canadian horses unloaded at Skaguay, Alaska, and it is feared that this action will cause discontent among American miners; but the duty was paid, although under protest. The collector also assumed the duty of appraising the horses according to their value in Alaska.

The *Country Gentleman* quotes Prof. Cottrell, of the Kansas State Agricultural College, referring to the recent reports of tuberculosis made through the public press. It can be tracked back at least to 1880, since which time it has been gradually spreading, though the general health of the herd continued excellent for a dozen years after that date. Tuberculin-tests were begun in February, 1894; but the whole herd was not gone through till last winter, when eighteen out of fifty-two were found affected, and were isolated. A second and more searching investigation is to be made on October 20th. Meanwhile no animals will be sold, none purchased, and no milk used for dairy purposes or for feeding animals.

A million and a half pounds of canned beef was recently prepared and shipped by a Kansas City firm for use in the Japanese army.

The United States is said to have had over forty million hogs at the beginning of the year, Iowa alone having nearly four million.

At last the two-minute record has been broken, and Star Pointer stands to-day king of trotters the world over. 1.59¼ points the beacon-mark of attainment in the breeding of trotters, and the wonderful strides to this great feat make its attainment all the more to be proud of. Our good friend, Dr. Bailey, of Maine, still lives, and though he had not expected to see this accomplished in his lifetime, we trust that many more years may be his to enjoy, and that the breaking of this record may yet be reached.

Over fourteen million horses within our borders on January 1, 1897. Iowa with over one million, Texas and Illinois a like number, while Rhode Island has but 10,129, with an average valuation of $75.25 each; Kentucky with 400,879, valued at over $13,000,000, or $32.57 per head, while those of Oklahoma are appraised at $13.40 per head. Texas leads in mules, with 261,428 in number to her credit, while Georgia has the greatest value invested, her 164,380 averaging $62.95 each. New Jersey averages the value of her mules at $76.70, while New Mexico only places $19.15 as the average value. The mules in the entire country are estimated at 2,213,654 and valued at $92,302,000, or an average of $41.65. From 1892 to 1897 the value of horses decreased nearly $600,000,000, while the number fell off only one million.

Another pair of draught-horses recently brought the sum of $465 at one of the Chicago auction-marts.

A freak of nature has been recently discovered in Kentucky. It is a pony forty inches high and five feet five inches in length. Its head is six inches longer than its neck, and it has a breast like a cow and hips like a hog. It possesses twenty-eight ribs and four stifle-joints, and is double-jointed in all joints. It is four years old and of Norman breed, and weighs 285 pounds. It is owned by Mr. Mason Gordley.

PERSONALS.

Dr. John R. Mohler, of Philadelphia, was transferred on April 1st from El Paso, Texas, to San Diego, Cal., for the inspection of Mexican cattle importations.

Dr. J. H. Ferster, of Brooklyn, fills the post of veterinary editor to the *Metropolitan* and *Rural Home*, as well as the United States Government veterinary inspectorship.

Dr. Raymond Barber, of Doylestown, Pa., has succeeded to the practice of Dr. H. E. Wand, of Newtown, Bucks County, Pa.

Dr. H. D. Gill, of New York, is a frequent visitor to Coney Island, and, with a fast trotter on the road, whiles away many enjoyable hours.

Dr. Harry Walters, of Wilkesbarre, Pa., was a recent visitor to Philadelphia and New York.

Dr. Alexander Glass, of Philadelphia, was the captain of a party who spent some ten days in August along the shores of the Chesapeake Bay.

President F. H. Osgood, of the U. S. V. M. A., was a victim of influenza during the month of August.

Dr. Albert H. Sheldon, of Boston, is an ardent canoeist, and longs for his annual pilgrimage to the streams of the "Pine Tree State."

Dr. H. A. Christmann has changed his location from Chestnut Hill to West Philadelphia.

Dr. S. J. J. Harger was a recent visitor to Canada on a professional mission.

Dr. George H. Bailey, of Portland, Maine, finds much pleasure at his stock-farm at Deering, Maine, where his choice selection of trotting stock attracts many visitors.

Dr. Charles P. Lyman, of Harvard Veterinary College, finds the mountain air of East Jaffrey, New Hampshire, peculiarly beneficial to his health.

Dr. Wesley H. Labaw, of Boston, spent his summer holidays at his home near Princeton, N. J.

President Lester H. Howard, of the American Veterinary College Alumni Association, and family, of Boston, are summering at Clinton, Mass.

Dr. Leonard Pearson was a visitor to the New England coast in August.

A cablegram from Berlin, Germany, brings news of the arrest of Dr. G. Leo Hagen Burger, of Brooklyn, N. Y., on the charge of theft of surgical instruments from one of the hospital clinics he was attending. Some months ago Dr. Hagen Burger sold out his hospital and practice in Brooklyn, ostensibly to take up the profession of law; but we are informed that his sojourn in Europe was for the purpose of fitting himself in some specialty of veterinary science, with a view of returning to take up practice again in this country. Happily the doctor was released by the judge who declared he did not think Dr. Hagen Burger intended stealing the instruments.

The JOURNAL is glad to report the return of Dr. Charles T. Goentner, of Bryn Mawr, Pa., to practice, with the promise of a complete recovery from his recent alarming illness.

Dr. J. C. Shaub, of Lancaster, Pa., was a visitor to the JOURNAL office in August. His summer holidays are spent in visiting distant sections of the country by easy jaunts in his carriage.

Dr. G. Howard Davison, of Millbrook, N. Y., is an admirer of the Berkshire breed of swine, and was among the purchasers at a recent sale of high-class stock.

Dr. W. S. Manley, of Arkansas City, has relinquished practice for a period, and will enter one of the veterinary colleges for a post-graduate course.

Dr. J. T. Crosby, M. R. C. V. S., formerly of St. Louis, Mo., has purchased the good-will and practice of Dr. W. S. Manley, of Arkansas City, and moved to that place.

Dr. D. P. Frame, of Colorado Springs, holds the position of food-inspector for that city under appointment by the health department. His duties cover meat, milk, and dairy as well as the inspection of all other goods.

Mr. Harold Sorby, of the Pasteur Vaccine Company, of Chicago, who has accomplished so much for the introduction in America of the products of the parent company of Paris, France, will be a welcome visitor at Nashville.

Dr. Matthew Wilson, Jr., of Mendota, Ills., has been appointed on the Board of Horseshoers by Governor Tanner.

Dr. W. W. Richards, of the class of '97, of Ontario Veterinary College, has been travelling in the Northwest, but has finally located at San Diego, Cal.

Dr. T. D. Hinebauch, of North Dakota, in connection with his trip to Nashville spent some time in the leading Western cities.

Dr. M. W. Tritschler, of Cincinnati, Ohio, was a visitor to the JOURNAL office in August. He was off for a summer vacation.

Mr. John A. Logan, Jr., will manage the harness and saddle classes at the Chicago Horse Show, November 2 to 13, 1897.

Dr. Robert McKibben has finally located at Parkersburg, W.Va. Dr. McKibben is one of the recent graduates from the veterinary department of the University of Pennsylvania.

Dr. L. Kenneth Green, of Booth's Corners, Pa., has been appointed inspector under the Bureau of Animal Industry and assigned to duty at Buffalo, N. Y.

Dr. A. W. Clement, of Baltimore, was a visitor to the New England coast in August, and was the guest of Editor Gill, of New York, on his way to the eastern shore of Massachusetts.

Dr. Frederick H. Osgood has again received the appointment of inspector of animals and provisions for the town of Brookline, Mass.

Dr. James B. Rayner and wife, of West Chester, Pa., spent a portion of August at Atlantic City, N. J., in the hope of restoring Mrs. Rayner's impaired health.

Dr. C. P. Lyman, of East Jaffrey, New Hampshire, was confined to his bed by illness for a period in August.

Dr. John M. Parker, of Haverhill, Mass., recently met with the misfortune of the loss of his esteemed wife.

Dr. E. E. Bittles and wife, of New Castle, Pa., spent five weeks travelling through the West. Visited seventeen different States and Territories, and found it required but very few veterinarians to supply the wants west of the Missouri River. In San Francisco an Italian is the leading veterinarian.

Dr. Frederick H. Osgood was recently elected an associate member of the Association of Military Surgeons of the United States, the first recognition of a veterinarian in that body.

Dr. J. G. Parslow, of Marshalltown, Iowa, fills the post of secretary to the racing association of that town.

Dr. Eugene W. Sullivan is veterinarian to the fire department of the city of Chicago.

NEW INVENTIONS.

A ball-float, the lever provided with a series of rods or arms of spring-metal, projecting from the lever in different radial directions, curved downwardly, and extended to embrace and confine with a constrictive pressure; the holder of the ball consisting of an inverted cup-shape casting, having an upwardly extended, transversely apertured hub; the edgewise arranged bosses provided with screw sockets.

A horse-cover with a pair of pivoted arms secured to the edges of the neck portion of the blanket, and mechanism secured to the blanket for turning said arms on their pivots.

An automatic cattle-gate for railways, comprising a bearing-block secured to the bottom flanges of the rails, a cam-faced shaft provided with cylindrical journals, the gate-panels and radial arm fixed to said shaft, the weight secured to the arm by the chain, in combination with the platforms, pivoted at one end to the fixed shaft, a chain connecting the shaft and the free ends of the platforms.

The combination with a horseshoe having a depending ledge upon its under side, provided with dovetailed recesses, of a plate fitting with the shoe; lugs upon the upper surface of plate having devotailed recesses registering with the recesses in the ledge; detachable calks having laterally extending dovetailed tongues adapted to fit within registering recesses, and screws passing through the tongues and lugs.

A horse-checking device operated from the seat of wagon through rods whose ends are arranged to drop in teeth arranged around the hub.

An improved hoof-pad, consisting of two parts of metal interlocking in the centre over the point of the frog.

An ice-creeper shell, carrying calks, and provided near its rear end with an opening through which the heel-calk of the shoe is adapted to pass.

A harness-saddle, comprising a saddle-seat, stems projecting downwardly therefrom, crupper-loop, a skirt for supporting the crupper-loop, and a bearing-strap adapted to move between the saddle-seat and crupper-loop and be guided by the stems.

An apparatus for aligning and starting horses on race-tracks, consisting of a spring-stretched, flexible barrier, having its ends connected to spring-raised brackets, movable in slotted columns, and levers adapted to engage teeth on said brackets, and connected together through bell-cranks pivoted on opposite sides of the track.

A horseshoe with curved calk projecting from lower face of the toe of said body, and an independent L-shaped calk projecting from the lower face of each of the heels; has long edges parallel with the outer edge, and the several calks merge nearby the centre of the shoe.

A checkrein-hook, combination with a post of a hook, the shank being swivelled to the post and provided with a transverse hoop which is adapted to be attached to the crupper-strap of the harness.

A currycomb with rows of teeth connected to back, a cleaning plate having openings through which the teeth can pass; the shoulders serve as abutments for the back, the coil springs are located between the back and the cleaning plate.

A line or rein-guide or holder, adapted to be connected with the hip-strap of the harness.

A holder for powder-papers, consisting of a base, the guide-posts, the pivoted latch at the upper end of one of the guide-posts, and the spring-actuated table arranged to slide on posts between the nose of the latch and the base.

A veterinary tooth-cutter, composed of parallel roller-bars, formed with sector-gears, each of the bars being provided at one end with a handle and at the other with a cutting-edge and connected by bearing-boxes.

A bridle-bit, the combination with the bit-bar having apertured ends that taper inward from opposite sides of the rein-rings, having opposite conical ends received into the tapering apertured ends of the bit-bar, and means for drawing said conical ends toward each other to tighten them in the bit.

A harness-buckle, the plate having orifices near the ends and the bend, the plate provided with slot, spring, and peg, in combination with a movable hand.

A clinical thermometer, having two distinct chambers formed within the bore of the tube, and a comparatively open contraction between both chambers.

A bandage-cutting machine, with knives and transversely slotted rests adjacent thereto.

A hame-body, formed from sheet-metal blank, condensing the metal at the place of the greatest wear and tear and permitting the body to be formed from a comparatively thin blank.

A cauterizing apparatus, in combination with a burner-tube of a blower-holder, carried by the handle.

A soft-tread horseshoe, the groove tread and band for retaining tread in position, and having its ends held in the groove in the tread.

An equalizer for preventing horses from leaving their feet, the combination with boots of a cord connecting the boots and a guide adapted to be secured against the under side of the body, and held against forward movement.

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PRESENTATION OF THE SUBJECT OF STATE CONTROL OF TUBERCULOSIS.[1]

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BEFORE considering more fully the subject-matter of this paper, you will pardon me if I stop for a moment to notice one or two stray thoughts that have occasionally occurred to me.

It has seemed sometimes, in discussing this subject, that there has been too great a tendency among the members of the profession to look upon everything as secondary to the question whether a cow reacted to tuberculin or not. It has seemed as if there had been too great a tendency to let everything else go, to pay no attention to anything except tuberculin and tuberculosis. I have often felt that this whole matter should be taken up in a broader, more general way; that the important question of wholesome milk should receive greater attention than heretofore. The work being done by sanitary boards should be broadened and extended. They should pay greater attention to the value of cleanliness and light, ventilation, and drainage. Tuberculosis is not the only evil to be avoided, and in attending to the surroundings all are helped, and both consumer and producer are benefited.

Again, it has seemed to me, sometimes, as if there had been too much anxiety among certain veterinarians to increase and exaggerate such danger as there might be, not so much for the good of the public as because the more the people become panic-stricken, the greater the likelihood that their pocket-books would be fattened.

On the other hand, it is only since the introduction of tuberculin that we have had any reason to hope that we may finally be able to control the spread of tuberculosis among dairy-cattle. Tuberculin has not only enabled us to rid many individual herds, at least temporarily, of tuberculosis, but it has greatly modified and changed the generally accepted opinion of tuberculosis. It has enabled us to gain a truer insight into the mysteries of heredity, and it has shown more clearly the prevalence of tuberculosis.

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[1] Read before the Thirty-fourth Annual Meeting of the United States Veterinary Medical Association, Nashville, Tenn., September, 1897.

Probably one of the most important of the new facts brought to our notice through the use of tuberculin is a knowledge of the immense number of latent or undeveloped cases of tuberculosis that exist in every herd. It is startling to see a large number of autopsies made, and note what a large proportion show only very slight evidence of disease.

In referring to this matter, Bang says: "As soon as tuberculin-inoculation was undertaken on a large scale, the public was surprised at the very large number of reacting animals, even in herds of healthy appearance. I refer to the work done first by Koepp in Dorpat, then by Siedamgrotzky and Eber in Saxony, Nocard in France, Malm in Norway, and others. The Danish investigations have yielded exactly similar results. Where tuberculosis exists it often has an extent which no one had suspected. The discovery produces at first a benumbing effect, and is always very painful to the owner of dairy-stock. Because of this it cannot be made too emphatic that there is a great difference between what was formerly termed tuberculosis and what, as a result of the tuberculin-test, is now indicated by the same word. When a reacting animal is butchered, very often the butcher finds no trace of tuberculosis, and the veterinarian must search carefully to discover the little knots on the lymph-glands, frequently the only pathological signs. These are seen especially in the retro-pharyngeal, mesenteric, mediastinal and bronchial glands. The majority of reacting cows have simply latent tuberculosis. In time this may develop further in many cases. But my investigations have shown that such tuberculosis can often remain without development for years and exert no influence on the general health or the functions of the animal. We cannot conclude from this observation that an animal which reacts with tuberculin is thereby condemned to advancing disease, to wasting away, and, finally, death. The reaction simply indicates the possibility of such a result. Whether or not it will prove a reality, we do not know."

Prof. Theobald Smith, in an address to the Harvard Medical Alumni, notices the same thing when he says: "The need of a better education in animal pathology is well shown by the work undertaken in this country, by public authority, to restrict, suppress, or eradicate tuberculosis among cattle. Tuberculin produces a temporary fever in all infected animals, whether they be in the earliest stage of the disease or in the most advanced stages. In fact, the not infrequent absence of any lesion after a tuberculin reaction is explained by the statement that the focus or foci could not be detected. There are a large number of cattle slaughtered on the evidence furnished by tuberculin which are in the earliest stages of the disease. A small focus in a mediastinal gland, perhaps, or in one of the throat or mesenteric glands, is all that can be found. Pathology has informed us that traces of stationary or healed tuberculosis, unrecognized during life, are not infrequently encountered on the post-mortem table. Are such persons to be placed within the class of diseased or simply infected? I believe that an infected animal is not necessarily an affected or diseased animal, and that no one can predict just what is going to become of a primary focus, whether it will gradually encroach upon neighboring organs or become generalized, or become calcified or cicatrized." (*Boston Medical and Surgical Journal*, September 24, 1896, p. 320.)

Practically the same thing was demonstrated by Pizzini, who has reported "observations upon lymph-glands of persons having died without showing any evidence of tuberculosis. In twelve out of thirty cases examined microscopically and by inoculation in guinea-pigs, tuberculosis was demonstrated and the further fact shown that only those guinea-pigs inoculated with bronchial glands showed any evidence of disease." (*Annual of Medical Sciences.*)

This is further corroborated by reported observations made at the Johns Hopkins University and elsewhere, from the large number of autopsies made on people dying from causes other than consumption, that show evidence of undiscovered or healed tuberculosis. From the number of cases in which this occurs it is evident that a larger number of people have consumption at one time or another during life, and recover, than there are that die from this disease.

Such a state of affairs is significant, and the only inference to be drawn is that tuberculosis is far more prevalent among human beings than we have had any idea of, and, in fact, that practically the same conditions exist among people that have been found, through the use of tuberculin, to exist in cattle; and if tuberculin were used as a diagnostic agent among people we would probably find that in a large number of cases individuals would react to the test that are at present considered healthy. Under these circumstances we would repeat the question asked by Prof. Smith: "Shall all these people be considered diseased or only infected?" We incline to the belief that there is a considerable difference between such *infected* people and those that are *affected* or *diseased.* In this connection it may be of interest to glance for a moment at the statistics showing the reduction in the death-rate from tuberculosis in Massachusetts. During the past forty-five years consumption has steadily and uniformly decreased; the maximum and minimum death-rates being 42.7 per ten thousand in 1853, and 22.7 in 1893. In Glasgow, Scotland, the figures are almost exactly similar. In the period from 1860 to 1864 phthisis reached its highest mortality, viz., 4094 per million; in the period from 1890 to 1894 it was 2315, so that in twenty-five years consumption has been reduced 44 per cent. in fatality without special treatment as an infectious disease. Unfortunately, phthisis is the only form of tuberculosis which has been throughout consistently classified by the Registrar-general as a cause of death. Then the report goes on to say: "We are, therefore, shut up to the twelve years, 1883 to 1894, for evidence of the movement of tuberculous diseases *other than phthisis.* Dividing them into two periods of six years, we find that the death-rate from 'phthisis' has fallen from 2849 per million to 2316, and from 'other tubercular diseases,' from 1090 per million to 884—in both cases 19 per cent., a result which quite casts into the shade the improvement in Prussia and Saxony, quoted from Cornet, which he puts down to the credit of special prophylaxis. Clearly, then, we are warranted in asserting that among infectious diseases tuberculosis is the most amenable of all to general hygienic measures; that, in fact, from these alone as good results are obtained as from hygienic measures plus isolation, disinfection, etc., in the case of diseases popularly known as infectious. It is not implied that special measures directed against the infectivity might not have produced even better results; but in view of the difficulties in the way of special prophylaxis it is to be contended that more is to be expected from hygiene." (*Report Glasgow Board of Health.*)

The special interest attaching to the reduced mortality from this disease in both Massachusetts and Glasgow seems to me to be due to the fact that these improved conditions have been attained entirely as a result of a better knowledge of the disease and a more strict carrying out of hygienic measures. Such a retrospect is encouraging when one considers that similar results would follow the introduction of like measures when applied to dairy-cattle; but before this can be done people must recognize the necessity for it and the great room for improvement there really is.

Before considering in greater detail the control work that has been done in Massachusetts, let us turn for a moment to some of the other countries and States where such work has been attempted. In European countries, probably the laws in force in Denmark are best known. There for many years past owners have attempted to control tuberculosis by removing diseased animals and having the stalls disinfected, and, as Bang remarks: "These efforts were not without significance. The conditions of health were improved, especially in places where the entire herd was subjected to thorough investigation by a competent veterinarian, and where the owner and veterinarian worked harmoniously together. . . . But even with these conditions it was hardly possible to be entirely freed from the disease. . . . The hidden, latent cases always remained, and were continuously coming to the surface." After the introduction of tuberculin Bang conceived the idea of dividing the reacting animals from those that did not react, and when the reacting animals showed no physical evidence of disease they were used for breeding purposes, and their progeny immediately separated and kept with the healthy lot. In this way a new, healthy herd was gradually built up. The State assisted by providing tuberculin and veterinary services free, and animals showing physical evidence of disease are destroyed. In Switzerland a somewhat similar plan has been adopted; there the State pays half the cost of test, and only entire herds can be tested. All cattle that react must be branded. The French method is slightly different; there, if an animal is found to be diseased, the State tests the entire herd, the owner having the option of keeping those that react for one year or slaughtering them immediately and receiving compensation from the State. All cattle coming into the country must also be tested. The government of the Dominion of Canada provides tuberculin free, this being done principally for educational purposes. It is also proposed to test herds in which disease is known to exist, and, as in France, all cattle coming into the country must be tested. In Ontario the Board of Agriculture has strongly advocated Bang's method among the farmers. If the milk, they say, from the reacting cows is used for the calves it should be Pasteurized. They state that "it is advisable to fatten quickly the animals that give a reaction with tuberculin, but are apparently healthy, and sell them to the butcher, making calculations to get rid of all reacting animals in the course of eighteen months or two years." They also state "up to the present time these tests for tuberculosis by means of tuberculin have been carried on by experts, veterinarians, etc., but that is no reason why an intelligent man who makes an effort to post himself as to the methods of keeping clean and using the various instruments should not test his own herd from time to time." In New York, New Jersey, New Hampshire, Maine, Vermont, and Rhode Island, owners receive half valuation for cattle killed and found diseased, and full valuation if condemned and killed and found free from disease. Pennsylvania, Connecticut, Illinois, Indiana, and other States give limited appraised value. In most of these States tuberculin is used either at the owner's request or in such herds as are known to be diseased. Connecticut relies almost entirely on physical examination. In Pennsylvania, New Hampshire, and Massachusetts experimental work is being conducted in various directions at the present time, and the results will be well worth noting. In Massachusetts the principles are practically the same as in these other States. The State pays full value for diseased animals, with a limit of sixty dollars. All cattle coming into the State must be tested, and tuberculin may also be used as an aid to diagnosis on animals condemned on physical examination by a qualified veterinarian and at the written request of owners, provided they agree in their turn to certain conditions prescribed by the Cattle Commissioners.

In Massachusetts the work of inspection has been, I think, fairly successful. In considering it I would divide it into two divisions: First, as a factor in the protection of the public health; second, as a help to the farmers and stock-owners in their endeavors to rid their herds of disease. It seems to me that these two points must be considered separately. Many facts must be considered, and the matter must be looked at from many points of view before one can gain even a faint idea of the magnitude of the subject, and it seems to me that in view of the many interests involved, since we cannot stamp it out by heroic measures, we should be content if we can make steady and substantial gain. We have only to look back a very few years to the time when milk was sold and cattle were butchered without any kind of supervision whatsoever. At that time the meat from "coughers" and "bolognas" was placed on the market, and milk was sold without any restriction so far as the health of the cow was concerned.

In 1876 (according to the *Report of the Cattle Commissioners for*

1895) an act was passed providing for the appointment of inspectors of provisions and animals intended for slaughter. This was a permissive act, simply providing that the mayor and aldermen of cities and the selectmen of towns may annually appoint one or more persons who may inspect all provisions and animals intended for slaughter. Under this act, which was taken advantage of by the cities and towns only slightly, it was found to be impossible to organize any systematic inspection of the herds of cattle in the State, and in 1892 the law was so amended as to provide that the same authorities "shall annually in the month of April appoint one or more persons to be inspectors of provisions and of animals intended for slaughter or kept for the production of milk." Under this latter act, however, no penalty was provided for the failure of the cities and towns to make the appointments required by the act, and it was again found necessary to strengthen the law. Accordingly, in 1893, a penalty was provided for cities and towns failing to appoint inspectors as required by law, and, further, the inspectors were, by this act, and for the first time, brought under the partial control of the Cattle Commissioners, by giving the Board the right to make appointments where cities or towns failed to do so, and the power to remove incompetent inspectors. This latter act was approved May 3, 1893, and immediately after its passage this Board undertook to collect the names and addresses of the various inspectors; to instruct them in their duties in so far as they related to the matter of the suppression of contagious diseases among the domestic animals; and to see that, so far as possible, animals intended for slaughter or kept for the production of milk were inspected as thoroughly as circumstances would permit. The first attempt to collect the names and addresses of the various inspectors was begun on May 12, 1893. Up to about October 15, 1893, only about one-half of the cities and towns in the Commonweatlh had complied with this requirement. From this small beginning and in the face of many discouragements, the organization of this corps of inspectors has been developed until now (1895) all but four of the cities and towns in the Commonwealth have made the necessary appointments."

This was a long step in the right direction. The principle involved was right. It secured the inspection of each herd in the State, and, as I shall endeavor to show later, it has resulted in an immense amount of good. Of course, the system is by no means perfect, the local authorities, except in large towns, rarely appoint qualified men for the position. I hope, however, that before long, instead of the local town inspector, the State will be divided into districts, each district being in charge of an experienced, qualified veterinarian. In this way, the work will be done far more thoroughly, and one of the principal objections to the present method will be done away with.

In referring to the work of the local inspectors one often hears the remark made, that physical examination does not amount to much any way. Now, while I admit that many bad cases cannot be picked out by physical examination, yet I am also satisfied that a large proportion of the bad cases of tuberculosis can be picked out, and many more can be suspected, so that they may be quarantined and tested. As a rule, the bulk of cases of udder-tuberculosis and a large proportion of generalized tuberculosis will usually show some suspicious symptom, and if these bad cases are got rid of, and if the milk supply is obtained from such animals as are in good general health and show no physical evidence of disease, I believe the danger would be reduced to a minimum.

As showing the good that can be accomplished by a herd-to-herd inspection, even by those who cannot be considered experts, I wish to call your attention to the following tables; this refers to the work done by the local inspectors for the past three years, and while the tables are not to be considered absolutely correct, especially for the year 1895, yet I believe they give in a fairly accurate way, at least, the approximate number of bad, dangerous cases that have occurred in each year.

1895, January 1st to December 31st: Animals tested, 4484; found diseased and condemned, 2398, or 53.4 per cent.; general tuberculosis, 784, or 32.6 per cent. Animals tested, no reaction, permission to kill; post-mortem lesions found, 53.

1896, January 1st to December 31st: Number of animals tested, 7062; number of animals found diseased and condemned, 4173, or 59 per cent.; general tuberculosis, 1051, or 25.1 per cent. Animals tested, no reaction, permission to kill; post-mortem lesions found, 82.

1897, January 1st to June 30th: Number of animals tested, 5300; number of animals found diseased and condemned, 3016, or 56.9 per cent.; general tuberculosis, 84, or 2.7 per cent. Animals tested, no reaction, permission to kill; post-mortem lesions found, 21.

You will notice, of course, that the last year is incomplete; the table only takes up to the end of June, but in the time it includes the yearly inspection, which was carried on this year in the spring instead of the fall, and at the present time the great bulk of the work is over and only a very few cattle are being placed in quarantine by the local inspectors.

Further, there were more animals quarantined this year than in 1895. In 1895, 4484 animals were quarantined, and 53.4 per cent. were condemned and found diseased, and 32.6 per cent. had generalized tuberculosis. In 1896, 7062 animals were quarantined, and 59 per cent. were found diseased and condemned, and 25.1 per cent. had generalized tuberculosis, an increase in the number of cases of tuberculosis and a considerable decrease in the cases of generalized tuberculosis from the previous year. In 1897, 5300 were quarantined, and 56.9 per cent. condemned because of reaction, and found diseased, and only 2.7 per cent. had generalized tuberculosis. This means simply that the bad, dangerous cases have been got rid of to a great extent, and I believe by perfecting this system the conditions can be still further improved, and all danger to the public health from this source practically eliminated. It is, I know, an immense improvement over previously existing conditions.

[To be continued.]

THE NEED OF VETERINARY EDUCATION IN MEDICAL COLLEGES.[1]

BY E. P. NILES, V.S.
BLACKSBURG, VA.

WHEN the Secretary wrote asking me to present a paper at this meeting, I was at a loss for a suitable topic to write a paper on, and for one to select a subject which has not already been timeworn on all sides is no easy task. So at the very last moment, and after receiving an urgent letter from the Secretary urging me to name my subject, in order that the programme might be printed in full, I decided to occupy but a few moments of your time in presenting to you this paper. I have chosen this subject not with the hope of advancing any new ideas or recording any wonderful discoveries, but because this matter is receiving so little attention, particularly by our medical brethren.

Upon giving the subject but a passing thought, it may seem to some of you that veterinary education in medical colleges is of but little, if any, importance, and a large number of the medical fraternity may ask, What do we care for a knowledge of the diseases of the lower animals? In answer to the latter I would ask, How many lives could you have saved had you but known the source of certain contagious diseases which you have treated in your practice? The idea of employing a veterinarian as a member of the faculty of a medical college seems to have given cause for but little thought, even at the present day, and I know of but three institutions which have established a chair of comparative pathology. Until recently it could not be wondered at that more importance was not attached to veterinary education by our medical boards, for we have been laboring in our infancy—screaming and howling as only infants can—but now we are shedding our long garments and gradually reaching maturity. We are concentrating our forces. We are rapidly securing State laws in the advancement and the elevation of our profession. Our colleges are increasing their curriculums and teaching-forces. We are gaining the standing of professional men instead of the common, every-day "horse doctor." In fact, we have become educators instead of a drag upon educators. We are now capable of nursing instead of being nursed. Therefore, let us educate the public and our medical boards to the importance of this branch of science, and, if necessary, do a little nursing at the same time.

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[1] Read before the Thirty-fourth Annual Meeting of the United States Veterinary Medical Association, Nashville, Tenn., September, 1897.

Too often a physician is called in to treat an infectious disease of the human family, and contents himself with making a simple diagnosis, and, after leaving directions as to treatment, departing without making an effort to trace the source of the disease. Can we call this negligence on his part? I hardly think so, for had he been taught comparative pathology at the college which he represents he would have known the importance of looking outside of the patient's house for the origin of the disease, and in all probability would not have left his patient until he had made a thorough investigation. The blame, then, rests upon the college and not on the physician.

There are several reasons why a veterinarian should be employed as a member of the faculty of medical colleges. A successful physician must be a good sanitarian. He must be able to prevent disease as well as to cure. He must be educated to know the value and importance of veterinary science. He must be educated to the importance of the appointment of a veterinarian on sanitary boards. He must be impressed with the fact that the two professions are closely related and, for the public welfare, must go hand in hand. He can only be so educated at the hands of the veterinarian.

A few years ago it seemed to be a matter of little importance whether a physician knew anything of the infectious diseases of the lower animals or not; but, since the researches in bacteriology have opened up a comparatively new field of science, we are forced to admit that contagious and infectious diseases are due to a specific microorganism, and that certain microörganisms are capable of causing disease in both the higher and lower animals. In many instances, however, the manifestation of disease may be so modified in the lower animals as to render it impossible for the physician who has had no training in comparative pathology to make a correct diagnosis; the physician in such cases failing to do his duty to his patients for the want of proper training. It would seem that certain branches of medical science were degenerating, although rapid strides have been made in certain directions. I refer particularly to the lack of interest shown in comparative pathology. In the beginning of the eighteenth century, when but little was known of veterinary science, Fleming states that eminent physicians devoted all their energies to the advancement of comparative pathology. These energies seem to have been peculiar to our forefathers, for where have we to-day, with the exception of three universities, a single individual, outside of the veterinary profession or an institution, manifesting any marked interest in comparative pathology? We also find that in the year 169 A.D., Galen, a noted physician of that time, is credited with having said that the education of a doctor was incomplete without a knowledge of the processes of disease among the lower animals.

Our colleges seem to have drifted into a narrow channel which, year by year, becomes deeper and narrower, and from which it is difficult to extricate them. Medical men, not having their attention called to the importance of having comparative pathology taught in their colleges, have lost sight of the early efforts of the medical profession, and are content with a knowledge of human pathology alone. They do not realize that their sanitary boards would be much more efficient and that they themselves would gain a much more prominent position in their community as public benefactors. With men who have been trained in comparative pathology as members of boards of health, diseases of the human family will be more effectually controlled. The importance of legal recognition of the veterinary profession would be more fully appreciated, and the appointment of a qualified veterinarian on all such boards would result. New positions for veterinarians would be created, and our profession would advance still more rapidly than now. Sanitary boards would become more than mere collectors of statistics. Legislators would soon see the importance of providing such boards with sufficient funds to prosecute the work of controlling and stamping out contagions and infections. In fact, these boards would become investigators and advisers. What are the majority of them now? I have in mind a city board of health which does but little beyond the employment of men to sweep the streets, and no doubt many of you could mention other similar boards of health.

The physician of this day and age should, to a certain extent, be an investigator, and in order to be an investigator in the proper sense of the term he must know comparative pathology.

Beginning with the earliest history of medicine, we find that the physician at that time gained the greater portion of his knowledge of medicines by experimentation upon the lower animals. His knowledge of anatomy of the human body was gained only by a most superficial examination of the carcass of a dead animal. He noted the arrangement of the organs and their connection with each other, and took it for granted that the organs of man must bear a close relation to those of the lower animals, and that their functions and relations to each other must be similar. He based his principles of the treatment of disease of man upon this crude knowledge of physiology and anatomy of animals. In those days experimentation upon man and the dissection of the human body were practically impossible, and it became necessary, therefore, for the physician, to a certain degree, to study veterinary science in order to obtain a practising knowledge of medicine.

At the age in which we are living, human subjects are more easily obtained; hence the anatomy of man may be studied without the aid of the lower animals, but not so with medicine. Here we still find it necessary to avail ourselves of the opportunity for study offered by animals. Actions, uses, and doses of new drugs are thus obtained. Antidotes for poisons are thus discovered, and antitoxins obtained for the treatment of disease in man. Similarity and identity of disease of man and animals are observed, and as animals furnish a very large proportion of our food we are beginning to realize more fully than ever that the source of some of the most fatal diseases of man is to be found in the lower animals.

If the two professions so closely related, yet in many respects so far divided, were marching along more nearly hand in hand, both would be bettered; both would become more successful; both would advance more rapidly; the physician would become more nearly an ideal public sanitarian, and every patient visited by him would be made to feel that he was truly in the hands of a good Samaritan. Hundreds of lives would be saved annually as a result of the practical extermination of preventable diseases, as is illustrated by the statements made by Prof. William Pepper in the *Brooklyn Medical Journal.* He says: "In Philadelphia during the past twenty years there were 55,000 deaths from tuberculosis, 11,500 from typhoid fever, 8000 from scarlet fever, and 155,000 from various infantile causes, all of which must be included in the list of preventable diseases." He classes all of these as preventable diseases, and adds: "If we should personally practice preventive medicine, I am certain our services would be vastly greater to suffering humanity than ever before. It is a higher medicine than that which seeks to quell disease after it has spread over our cities and eaten into the vitals of the people."

Here, then, we find it necessary for the physician who, for example, would prevent the spread of tuberculosis in the human family to have a sufficient knowledge of the disease in the lower animals to be able to advise his patrons in that direction; for what good is there in attempting to check the ravages of contagious diseases in man if man is to continue to be exposed to the same disease in the lower animals? Therefore, a physician can but practice preventive medicine imperfectly without first having had the proper training in both branches of the medical science. A veterinarian as a member of the faculty of every medical college is, therefore, indispensable in this day and age; and while we are making rapid strides in so many other directions, let us not lose sight of the importance of agitating this question.

INHALATION-PNEUMONIA.

By W. L. Williams, V.S.,
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AND
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The inhalation of foreign bodies, mechanical, chemical, or bacterial, tends usually toward bacterial invasion of the bronchial mucosæ, extending thence to the deeper parts, finally involving all tissues of the lungs, inducing suppuration, necrosis, and death.

The symptoms vary greatly in detail, though in general they present the ordinary signs of bronchitis and pneumonia, along with expectoration of fetid bronchial secretions and variations in chest-sounds as would result from the presence in the tubes of the foreign bodies inhaled or of the products of disease.

The most common causes are the inhalation of medicines during their forced administration; of food-particles during coma, as in parturient apoplexy of the cow; of pathogenic organisms and their products, after arytenectomy for the cure of laryngismus in horses, or other operations in the upper air-passages; by the inhalation of pus discharged into the fauces or upper air-passages, from abscesses, diseased teeth, or tumors; by animal parasites in the air-passages; by the inhalation of irritant gases or hot smoke or of liquid chloroform during the production of anæsthesia, and by a great variety of more rare accidents ending in the lodgement of irritant foreign bodies within the air-passages. We might include, also, a highly important class of infections, like diphtheria, in which there is a tendency to the extension of the lesions to the lungs; or of tuberculosis, actinomycosis, and glanders, in which necrosis and softening of patches of lung-tissue frequently occur, discharging into the bronchi, tending to pass upward, only to be, in part, carried backward into neighboring bronchi, establishing there their typical pathological processes in the manner commonly termed auto-infection.

As a rule, the treatment of these cases has proved ineffectual, and practitioners recoil from them with well-founded dread. The plan usually followed consists in the internal administration of expectorants and sedatives, with some of the gum-resins possessing antiseptic properties, and which are largely excreted by the lungs, and the inhalation of vapors, either simple or medicated. Intratracheal injections of vermicides have been successfully employed in verminous bronchitis, and the bronchial mucosa has been used as a prompt and reliable absorbent surface for the administration of various drugs in solutions of small volume. The senior writer has attempted the administration of antiseptics in small volumes by intratracheal injection in cases of suppurative bronchitis, and has endeavored to aspirate suppurative areas of the lung and inject the cavities with antiseptics, but without noteworthy success. Beaumont Small (*Handbook of Medical Science*, ix. 756) employed a 1 : 500 solution of pyoctanin in the form of intrapulmonary injection of eight to sixteen minims in pulmonary tuberculosis, which was reported well-borne, except that when reaching the bronchi it caused violent coughing, but was said to have lessened the hectic condition and diminished the number of bacilli in the sputa.

We have been unable to find a record of any attempts to administer, per trachea, for therapeutic purposes large volumes of liquid, either as mechanical detergents or as topical or general antiseptics, the filling of the lower air-passages with liquids being associated in the popular mind with drowning. Opposed to this fear existed the well-known fact that in partial drowning the water which had well filled the air-passages was in many cases partly drained out, largely absorbed, and the patient left little worse for the experience beyond the psychical shock. It had also been shown experimentally that large quantities of water could be slowly introduced into the lungs through the trachea and become absorbed without untoward results, while a like volume introduced rapidly and persistently would produce profound disturbance and eventually death. Notwithstanding that absorption occurs more rapidly in the lungs than elsewhere in the body, excess of fluid effects material changes not only in the respiratory epithelium, but also in the blood, in which any change must necessarily affect all other tissues.

In an experiment at Lyons, France, under the direction of Gohier, 30 litres (7½ gallons) of water were injected into the trachea of a horse without causing death. In another case it required 40 litres (10 gallons) to kill the animal by suffocation. Colin (1873, vol. ii. page 109), experimenting along the same line, introduced into the trachea of a horse by means of a special apparatus 6 litres of water per hour at a temperature of 30° to 35° C., which was continued for three and one-half hours, making a total of 20 litres, after which the animal was immediately destroyed, the bronchi quickly opened and found empty, all the water having been absorbed. In another horse he introduced into the trachea 25 litres of water in six hours, and bled him three times at intervals of two hours, obtaining 6 kilogrammes ($13\frac{2}{10}$ pounds) of blood. The respiratory mucosa absorbed all the water without apparent inconvenience to the animal.

Intratracheal medication, though not in general use, has much to recommend it when rapid effects are desired, especially in those pulmonary diseases where antiseptics are indicated. Among the agents best adapted for this use is hydrogen peroxide, which is antiseptic, non-toxic, deodorant, styptic, and, in dilute solution, non-irritant.

With these facts and suggestions before us, two cases were presented at the clinics of the New York State Veterinary College which served to invite more radical attempts at intratracheal medication than had previously to our knowledge been undertaken, the results of which were, to us, at once so unexpected and instructive that we felt ourselves warranted in communicating them to the profession, though admitting that our experiments were preliminary and quite incomplete.

CASE I.—An adult roadster gelding, vigorous and sound so far as known, except well-marked laryngismus paralyticus, on which account he entered the clinic for the removal of the left arytenoid cartilage. After careful dieting, he was cast for the operation on June 3d. General anæsthesia was omitted, and cocaine used to produce local insensibility. A tracheotomy-tube was inserted some twelve inches downward from the larynx, after which the arytenoid cartilage was excised in the ordinary manner by the senior author of this paper. The patient fought viciously throughout the operation, and, the day being warm, he became very hot and bathed in profuse perspiration. The operation completed, the tampon trachea-tube was inserted and the operation-field tamponed with absorbent cotton and iodoform.

June 4th. The tampon and canula were removed, the operation-field carefully sponged with 1 : 1000 sublimate solution, and the horse was permitted to drink a goodly quantity of milk, which he apparently relished. From this time until June 10th the patient seemed bright, drank liquid food with avidity, temperature was normal, and all appeared well except an abundant and ever-increasing fetid, purulent discharge from the nostrils and tracheal openings.

10*th.* He appeared weaker and had fallen down, but was quickly assisted to his feet, and, the fetor of tracheal discharges still increasing, we injected small quantities of hydrogen peroxide into the trachea, which caused the discharge of some froth.

11*th.* Well-defined suppurative broncho-pneumonia was noted, the patient was rapidly failing, and the area of disease was so great that the intratracheal injection of small volumes of antiseptics could promise no benefit. At this juncture Prof. Law suggested that, as an experiment on a hopeless case, we might, in light of the experiments noted above, attempt the administration of antiseptics by the intratracheal injection of large volumes of liquids and permit them to be absorbed from the pulmonary mucosa. We prepared a tepid solution consisting of 5 litres of water, 30 grammes sodium chloride, and 60 c.c. of the commercial solution of hydrogen peroxide. Placing this in an irrigating reservoir at an elevation of ten feet above the animal, with the liquid gravitating downward through a three-eighth inch rubber-tubing and escaping through a one-fourth inch nozzle, the latter was inserted in the tracheal opening and the liquid allowed to flow into the trachea in a full stream until about one litre had entered, when by an expulsive effort the greater part was thrown out through the tracheal openings—mouth and nostrils—the liquid emerging frothy and carrying with it fetid discharges. As soon as that which had been thrown into the trachea was well out the process was quickly repeated until within ten minutes the entire five litres of liquid had passed into the trachea, the greater part of it having been thrown out again, carrying with it much putrid material. This was accomplished without apparent distress to the patient, causing only a moderate amount of coughing with each expulsive effort, and leaving him at the conclusion of the ordeal apparently without additional fatigue and with the fetor of his breath greatly diminished, his air-passages clean, and, to all appearances, the local conditions materially improved. The patient died on the following day without our having repeated the treatment, and the autopsy showed extensive necrotic broncho-pneumonia.

The only result gathered from the case was the facility with which large volumes of liquids could be rapidly introduced into the trachea without producing inconvenience to the animal worthy of remark, at the same time thoroughly flushing out the air-passages and measurably deodorizing and disinfecting them.

CASE II. was in all material respects like Case I. Operated upon on June 4th of this year in the same manner as Case I., by student H. The patient struggled less violently than Case I., and was less fatigued after the operation. Tampon and tampon-canula applied as in Case I., and removed the following day. Deglutition very imperfect, almost all fluids taken into the pharynx being expelled through the nostrils and tracheal openings.

From June 6th to 12th the loss of power of deglutition continued unabated, and there were no notable changes except that gradually increasing fetid discharges took place from the nostrils and tracheal and laryngeal openings. By June 13th the patient had become exceedingly weak, having been practically without food, either solid or liquid, for nine days. At this stage the tracheotomy-tube, which had been removed on June 6th, was replaced as a precautionary measure, and the patient allowed to eat succulent grass and soft bran and linseed mashes, of which he partook sparingly, much of it dropping out through the laryngeal opening.

By June 17th the breath had become very fetid, and, on the 18th, excessively stinking. An examination of the tracheal wound revealed a necrotic piece of cartilage, which was excised. We then introduced into the trachea 5 litres of tepid water with 30 grammes of sodium chloride and 60 c.c. solution of hydrogen peroxide, which, flowing in rapidly, was largely expelled, thoroughly flushing the air-passages, pharynx, and surgical wound, cleansing and deodorizing the parts.

On the 19th the fetor seemed so much less that the irrigation was omitted; but on the 20th the fetor had increased, and the lungs were again flushed out as on the 18th, without inducing any marked discomfort. The intratracheal treatment was now continued.

After this the patient seemed to improve slowly, if at all, in strength, appetite, and power of deglutition, and was greatly harassed by a persistent cough. The tracheotomy-tube was removed on June 25th, as the power of deglutition now seemed restored, and by July 14th the tracheal and laryngeal wounds had closed; but the cough continued, the patient remained emaciated and weak, the appetite indifferent, the breath had again become fetid, especially evident during his fits of coughing, when he expectorated through the mouth or expelled through the nose dirty-gray, very fetid discharges. As there was evidently a still more serious pathological condition present, we reopened the laryngeal and tracheal wounds for examination, finding each completely healed and all adjacent parts apparently normal. We had barely completed our physical examination of the parts when, in a fit of coughing, he expelled through the laryngeal incision an excessively fetid, dirty-grayish, tenacious mass, which it could now be no longer doubted had emanated from low down within the bronchi, and indicated local purulent broncho-pneumonia. We then began anew the irrigation of the bronchi, the volume, composition, and mode of administration of the fluid remaining the same, and being repeated daily. On the 15th we began the internal administration of quinine sulphate ʒj, nux vomica, grs. xx, and arsenic, grs. ij., twice daily. At the first expulsive effort during each irrigation the patient expelled with the water about 10 c.c. of a dirty-gray, very fetid, tenacious discharge, and on July 17th he expelled a piece of fetid necrotic tissue estimated to weigh 2 grammes.

July 18*th*. The volume of water was reduced to 3 litres, the sodium chloride correspondingly, leaving it at .06 per cent., while the volume of hydrogen peroxide was left unchanged.

19*th*. Five days after the beginning of the regular daily irrigations the fetor of the expectorated mass had greatly diminished, while its color had changed to almost that of ordinary mucus.

20th. No fetor could be detected in expectorate nor in expired air.

26th. The hydrogen peroxide was doubled, which caused more coughing and resulted in increased discharge of bronchial secretion on the 27th and 28th, though the hydrogen peroxide had been reduced on the 27th to the original amount, and was so continued thereafter.

31st. The patient had markedly improved in every way, was gaining rapidly in flesh, the cough was less frequent, the bronchial discharge less, and seen practically only at times of irrigation, and the animal would run and play in the paddock. The use of the tracheotomy-tube through which injections were made was dispensed with on July 30th, and the nozzle of the injecting-tube inserted directly in the trachea, with an apparent advantage in causing less coughing.

August 2d. The patient had so far recovered that treatment was discontinued and the tracheal wound permitted to close.

7th. He was hitched to a buggy and tested at a rapid pace up a steep hill, and found apparently much improved in wind.

12th. He was driven home, a distance of twenty miles, without showing signs of fatigue. On August 31st the owner reported the patient much improved in flesh, practically free from cough, almost free from respiratory difficulty when driven rapidly, and taking exercise-work daily without fatigue or other difficulty.

While our experiments were very limited in extent, and can be regarded only as preliminary and suggestive, some facts have been established which appear to us of interest.

It has been shown not only that large volumes of water can be introduced slowly into and absorbed from the lungs, but that such quantities can be introduced at a rapid rate into the trachea and bronchi, if the trachea is open, and be thrown back through trachea, larynx, pharynx, mouth, and nostrils, thoroughly flushing these parts, constituting thereby our most efficient cleansing procedure. We have shown that the air-passages tolerate quite well at least one antiseptic—hydrogen peroxide.

Of great interest, it appears to us, is the fact that on July 17th, during irrigation, we flushed out a large-sized piece of necrotic tissue, which must have been lodged low down in the bronchi. In each case apparently, we cleared the bronchi (at least the larger ones) of all foreign matter, and certainly are warranted in believing that the irrigation of the lungs exerted a very favorable influence on the course of the disease.

Our efforts suggest a much wider range of usefulness. In accidental inhalation of drugs during drenching, it seems that irrigation may, in safety, be depended upon to wash out oils, to dilute and wash out such irritants as alcohol, turpentine, whiskey, chloral, etc.; while in case of foreign bodies of considerable size it offers us a means for their removal quite worthy of a trial. It seems quite possible that good results might be had by this plan in such affections as pulmonary tuberculosis, where large softening areas communicate with and discharge into the bronchi, and in all forms of suppurative broncho-pneumonia, and possibly also in extensive diphtheritic invasion of the air-passages.

Perhaps one of its most direct uses will be found in the prevention of inhalation-pneumonia after arytenectomy, as it affords us not only a safe plan for thorough irrigation of the field of operation, but the fluid passing down the trachea into the bronchi will flush out and destroy any pathogenic organisms which have been inhaled.

We do not say that our plan, formula, or rate of administration is the best. Other antiseptics may be better and other rates or details of administration may be far superior. We do not know if it is better to have a tracheal or laryngeal opening or not, though the absence of a counter-opening might, it seems to us, lead to a dangerous spasmodic closure of the larynx. The rate of administration can evidently be varied. We did not know at the beginning of our experiment the rate of administration by the experimenters quoted, and departed widely from their plan by introducing the liquid at a very rapid rate—quite too rapid to permit of total absorption—and in that way learned that we could, without discomfort or injury, have it quickly expelled; and thus we learned by comparison with Colin's and Gohier's experiments that we may, at our option, by varying the rate of administration, either have the liquid absorbed or rejected or partly absorbed and in part expelled. At some times we apparently had 50 per cent. or over absorbed, though always given rather rapidly, while in other cases nearly all appeared to be rejected.

We have been led to hope that, in spite of the meagre experience upon which we have based our communication, the facts and suggestions will suffice to lead others to study the plan of treatment herein outlined, with a view to developing a successful method of therapeutics in this heretofore baffling group of affections.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS,
PRINCETON, N. J.

THERAPEUTICS OF CHRONIC OTITIS IN THE DOG —In the treatment of this disease many practitioners have doubtless applied a great number of remedies without attaining the desired result; and how unpleasant it is, after a time, to feel compelled to announce to the owner that the recovery of the dog is beyond hope. In the treatment of the disease, the causes and duration of the same, as well as the progress which it has already made, may well be taken into consideration; yet to establish the last point is not always easy, if not exactly impossible. While in the one case treatment with powder is given the preference, in the other the application of medicine in fluid form has proved itself more effective; and I take the liberty to describe the procedure, borrowed from the sphere of human medicine, with which a complete cure was quickly obtained in some very advanced cases. Yet, I should remark beforehand that my experiments were not numerous enough, from lack of material, to admit of a positive result, and I publish them now, so that a trial of the treatment may be made elsewhere, although in the few cases I thus treated the result was surprising.

The sick animal should be laid upon a table and held firmly by attendants. A muzzle is likewise absolutely necessary to prevent biting. The ear affected must then be thoroughly syringed out with lukewarm water, to remove entirely all accumulations formed by the existing inflammation. The greater the changes which have taken place, the longer must the syringe be used. The ear should then be thoroughly dried out by means of the pincers and a small piece of gauze, and, according to the size of the dog, from ten to twenty drops of a 3 per cent. solution of chromic acid be dropped into the ear-canal with the dropper. The fluid which has been thus dropped in is to be distributed well through the canal by kneading gently at the base of the ear for about two minutes; then follow up with repeated syringing with lukewarm water, and then close up the ear with a wad of cotton. This treatment should be repeated in two days, and I have obtained the most beautiful results in from eight to fourteen days after the treatment had been repeated three or four times, according to the extent and acuteness of the disease. After this treatment the animals usually shake the head violently, but only for a short time; and it often happens that the cotton wad falls out, yet this is of no great significance. On the first application of this remedy the diseased places become tinged with yellow from the chromic acid, and the extent of the inflammation can thus be readily determined. The application of this remedy is to be recommended only in chronic cases, for my friend and colleague, Wille, tried it in an acute case, and the trouble was augmented rather than decreased. It is also to be noted that the solution of chromic acid should be prepared fresh for every application, as it loses its effectiveness when kept standing.—*Wochenschrift* (Albrecht and Goring), in *Thierärztlches Centralblatt*, November 1, 1896.

TUBERCULAR SYNOVITIS AND METASTATIC INFLAMMATION OF THE JOINTS. From Prof. E. Hess' *Annual Report.*—According to our clinical, pathologico-anatomical and experimental investigations, cases of more or less acute tubercular synovitis occur very often in the elbows, in the joint of the hock, and in the membrane (or sheath) of the muscle extensor digitorum pedis longus in cattle a few weeks after calving, and especially after abortion. We believe, after careful observation, that we are justified in assuming that tuberculosis is the most frequent cause of the so-called inflammation of the tarsal-joint in cattle. It is also certain that lighter forms of tubercular synovitis, with good care and proper treatment, can be cured after weeks or months; nevertheless, for financial reasons, it is better to kill all those animals in which the disease sets in with great severity, remains for a long time unchanged, or steadily grows worse. In connection with this should be mentioned those metastatic inflammations of the joints which represent secondary diseases—the so-called secretory metastasis. These occur not infrequently among our larger and smaller domestic animals, and are often still wrongly diagnosticated as rheumatism of the joints. They are undesirable chemical complications as well as of great importance, from a pathologico-anatomical point of view, in many infectious and febrile diseases, as, *e. g.*, pyæmia, septicæmia, glanders, retentio placentarum, metritis purulenta, vaginitis traumatica, mastitis, acute omphalitis, infectious agalactia in goats, chronic swine-erysipelas and swine-pest, and epilepsy in dogs. On the ground of anatomical investigation we cannot share the opinion, often expressed, that rheumatism of the joints in cattle rests upon an infection arising from a puerperal uterus. On the contrary, we are convinced that those inflammations of the joints, and especially those of the hock-joint—*i. e.*, the so-called udder-inflammation of the joints, which often arises after a normal birth, after abortion, retentio placentarum, metritis, and vaginitis—have nothing to do with rheumatism of the joints, and are really to be regarded as secretory metastasis or tuberculosis. Secretory metastasis bears to the diseases of the genital organs a relation analogous to that of gonorrhœa in man to the gonorrhœal inflammation of the knee-joint.—*Idem.*

TUBERCULOUS LEPTOMENINGITIS BASILAR. By Dr. Gerosa Giuseppe.—In August of last year Giuseppe was called to an ox, two and one-half years old. Although the animal always had a good appetite, and there was no falling off in its general condition, for a month it had been holding its head and neck slightly bowed and turned toward the right. On the day before Giuseppe was called in the ox had suddenly fallen down in the stall. It worked itself up quickly again, but was seized with great restlessness, with which chronic contraction of the muscles of the neck was connected; the animal now took no food. The next day the animal showed a peculiar inclination to press itself against the manger for support. During the examination it retained the same position. The mouth was dry, the hide clung close to the ribs, the temperature of the body 39.6°, pulse normal at 55, respiration 16, evacuation and urination decreased; all food refused. When driven from the stall nothing abnormal was noticeable except the peculiar position of the head and neck described above. As cases of cœnurus cerebralis occur often in the neighborhood, Giuseppe reached this diagnosis, although the visible symptoms did not fully correspond to those of that disease. On the advice of Giuseppe the animal was immediately killed. An examination of the brain yielded the following result: After the dura mater was removed the basilar portion of the pia mater was found sown over with translucent miliary tubercles. These were most thickly accumulated along the larger blood-channels and the groups of veins. Beyond this nothing worthy of note was found in the whole brain. It was simply a question of a probably primary tuberculous leptomeningitis basilar. I think that without the oft-recurring cases of cœnurus cerebralis, which led to a false diagnosis, one would have, at most, been compelled to assume some injury of the brain-matter as the cause, without attempting to define its position and nature, particularly as not a trace of tuberculosis could be detected in any of the internal organs.—*Idem.*

INFECTIOUS MATERIAL OF THE APHTHA EPIDEMIC.—According to the *Deutsche Thierärztlche Wochenschrift* of October 12th of last year, Dr. Lydtin, Privy Councillor of Baden, had been informed by letter from J. St. Furtuna, chief of the veterinary department in Roumania, that Veterinary Inspector Starcovici, in the bacteriological institute of Dr. Babes, had succeeded, in February, 1896, in isolating a micro-organism from animals affected with foot-and-mouth disease, and that the same had been inoculated internally and subcutaneously into cattle, with the result that the foot-and-mouth disease was transmitted to them.—*Idem.*

INFECTIOUS DISEASES IN MAN.—From the Austrian Sanitary Report; period from June 21 to July 18,.1896.—Hyssa: The following were injured by the bite of mad or suspected dogs: In Istria, 1 ; in Bohemia, 15; in Mähren, 5; and in Bukownia, 2 persons. Of these, 5 were subjected to the anti-rabies treatment in Vienna and 2 in Bucharest. In Lower Austria 1 child died of typical hyssa which had been bitten by a dog suspected of rabies.

Anthrax: In Vienna one fatal case occurred, the details of which have not been made public. All the cases of this disease in Bohemia and Mähren had a favorable outcome. During the period from July 19 until August 15, 1896, two men who had assisted in the burial of a cow affected with spleuitis were affected with anthrax-pustules. A further infection in a case of a woman in Czernowitz has been announced. The details are not yet published.

COUNT GATTENBERG, MEMBER OF THE LOWER AUSTRIAN DISTRICT COMMITTEE, CELEBRATES THE TWENTY-FIFTH ANNIVERSARY OF THAT EVENT.—Constantine, Count of Gattenberg, for many years an honorary member of the Veterinary Association in Austria, on September 25th celebrated his twenty-fifth annual jubilee as member of the Lower Austrian District Committee. Inasmuch as Count Gattenberg had given so many proofs of his recognition of the efforts of veterinarians, and the veterinary organization of Lower Austria had received under his direction a very high development, the association of veterinarians in Austria sent a deputation, consisting of President Toscano, Secretary Dauscher, and Central Committeeman Wittmann, to congratulate him in the name of the association. On October 3d the officials and veterinary committee presented the Count with a beautiful album containing their photographs. Certificates of honorary membership in many associations were handed to the Count. At the banquet in the Hotel Elizabeth twelve veterinarians were present. District Veterinarian Dr. Saass proposed a very appropriate toast in honor of the Count.—*Idem.*

FRENCH.

TRANSLATED BY DR. ALEXANDER GLASS,
PHILADELPHIA, PA.

THE ETIOLOGY AND RATIONAL TREATMENT OF ANASARCA, BY DR. CADEAC.—Anasarca is an infectious malady, occurring generally as a secondary condition. It occurs in various forms, characterized by acute dilatation of the veins and marked by petechial spots on the mucous membrane and by circumscribed œdema, with a tendency to extend over the entire body. Anasarca as a primary affection is extremely rare. It often follows a relapse in some other affection, and is localized by certain germs which occur in the blood. These germs are toxic, and produce dilatation of the venous organs. It generally follows the following diseases: Influenza, pharyngitis, acute coryza, acute laryngitis, infectious bronchitis, enteritis, gastro-enteritis, typhoid fever, abscesses, and dropsy of the extremities, accompanied by acute distention. In some cases the microbes produce suppuration, causing a toxic dilatation of the venous system, and produce anasarca. When the dilatation occurs there is an abundant collection of petechial spots. This is followed by œdema of the extremities, by hemorrhage, and finally by gangrenous portions.

The treatment of anasarca at the first is to find out the cause for the dilatation of the veins. The indications are that all antiseptic medications should be both local and general. This medication should be made with the object of lessening the production and hastening resolution of petechial spots and the œdema. The formula indicated in such a disease is 40 centigrammes of strychnia and ergotine per day. Tonics in general are to be used, especially coffee and caffeine. Anti-streptococci serum by Marmoreck is used to advantage. The only trouble about it is that this serum is very difficult to procure, but it should be always preferred as a curative agent.—*Journal de Médecine Vétérinaire, etc.*

EQUINE NASAL POLYPI, WITH PROFUSE DISCHARGE.—This subject had an enlargement of the submaxillary lymphatics, and at the same time large quantities of mucus were passing from the nose. It was suspected that the nasal sinuses were filled with pus. The animal was trephined in the left frontal sinus, and large quantities of pus escaped. This treatment did not prove successful. The superior submaxillary sinus was then opened, and large quantities of pus escaped from that, but still the animal continued to discharge from the nostrils. Mallein was tried in two instances at intervals of two months, but did not produce any pointed reaction. The animal finally developed a large tumor, was declared incurable, and killed. Autopsy: Large masses of pus were found. The membrane and mucous membrane were extremely friable and very vascular. Ossified masses were found in some parts of the right superior maxillary sinus. On the back of the ethmoidal sinus there was found a large tumor, red in color, gelatinous and irregular shaped, and soft and friable. The pedicle of this myxoma was attached by numerous ramifications, and the periosteum of the other organs were healthy. —*Recueil de Médecine et Vétérinaire.*

ARTHRITIS AND SYNOVITIS, BY DR. GUITTARD.—This author distinguishes two forms of this disease that are very grave. The one form due to the strain of the joint, and the other due to rheumatism. The first form, in the early stages of the disease, is best treated by means of cold applications; but when the acute inflammation has lessened it should be followed up by blistering. The author specially recommends an ointment consisting of the following: Bichromate potash, 4 grammes; iodide potash, 4 grammes; vaselin, 50 grammes.

In rheumatic arthritis of these parts it does not respond very quickly to treatment; the best means employed was the administration of 25 grammes of salicylate of soda per day, this to be administered for five or six days. Dr. Guittard claims that by the aid of this ointment he was successful in all his cases treated in this way when he got them in their initial state. When the case becomes semi-chronic they are very much more difficult to treat.—*Progrès Vétérinaire.*

THE TREATMENT OF PULMONARY EMPHYSEMA IN THE HORSE. —Dr. Geaudeans reports his mode of treatment as being very efficacious, and he gives the following prescription: Arseniate of strychnia, 3 centigrammes; arseniate of iron, 25 centigrammes; iodide of potash, 2 grammes, to be administered three times daily. Frequent frictions of alcohol and vinegar generally produce a complete recovery in two months.—*Revue Vétérinaire.*

SELECTIONS.

Alexander Galbraith, in a recent issue of the *Breeders' Gazette*, referred as follows to the different breeds of ponies:

The established breeds of ponies in the British Isles include the Shetland, Iceland, Exmoor, Welsh, New Forest, and West Highland, all of which may, practically speaking, be called pure-bred. The Shetland is the smallest pony, ranging generally from 36 to 44 inches, and is, on account of his low stature and docile disposition, by far the best children's pony. His characteristics are strength, hardiness, docility, and, when well bred, wonderfully good action. Provided by nature with the means of resisting the storms to which he is exposed in winter in the Shetland Isles, he is at that season as "shaggy as a sheep," but when warmer weather comes, and he gets into a better condition of flesh, he sheds off like all other horses. The prevailing colors are blacks and browns, with a sprinkling of bays and sorrels, and an occasional dun, piebald or skewbald.

The Iceland pony stands from 10 to 12 hands high, and is frequently sold as a Shetlander, but is by no means equal either in conformation or disposition. They are strongly built ponies, their heads being decidedly larger. Many are natural pacers, and quite a few of them are possessed of a rather stubborn disposition. Iceland ponies are much more numerous and much less valuable than Shetlands. They are all colors, including many skewbalds, or bay and white.

The Exmoor is a south of England pony, bred chiefly on the moorlands of Devonshire. They range from 11½ to 13 hands, the average being about 12 hands. They are of finer quality and more intelligent than the Iceland pony—in fact, superior every way, but being somewhat high-spirited are not as safe for children's use as the "wee Shetland shelty."

The Welsh pony is very similar to the Exmoor, but a trifle larger, say about 13 hands on an average. Bays and browns predominate in both breeds. The Welsh pony is full of mettle, and many of them have splendid action. The cross between a selected Welsh pony mare and a good 14 to 15-hands hackney stallion often produces the ideal cob-pony, which is the most useful animal on an English farm.

There are about three thousand breeding ponies in Hampshire, England, of what is known as the New Forest breed. They range from 11½ to 13½ hands high, and are somewhat similar in many respects to the Welsh and Exmoor ponies, but have been repeatedly crossed with Arab blood during the last forty years. Both Queen Victoria and her late husband, Prince Albert, put Arab stallions into the New Forest at different times, and many excellent polo-ponies have been produced there, although Lord Arthur Cecil—a very good authority—is of the opinion that the larger of the Welsh ponies are equally good even for polo.

The last and largest of the pony breeds is the West Highland, which is indigenous to the west and northwest highlands of Scotland. They range generally from 13 to 14 hands high, are very stout and symmetrically built, resembling miniature draught-horses, which in point of fact they really are. Their disposition is like that of the Highlander himself—rather peculiar. For their height, they are immensely strong, very sound in wind and limb, mostly dark, solid colors, and they prefer walking to trotting at all times.

Of all pony-breeders in Great Britain, Lord Londonderry stands easily at the head for Shetlands. He has a large and carefully selected stud on the Island of Bressay, and has done much to improve the breed, and especially their action, during the last twenty-five years. At the recent Royal Show all the prize-winners, both male and female, in the Shetland section were bred by his lordship.

Mr. Christopher Wilson, of Rogmaden Park, Westmoreland, has the distincton of having created the modern show-pony by judicious selections and successful mating. His well-known stallion pony, Sir George, a miniature hackney, wön first prize eight successive years at the Royal Show. He was crossed with his own daughters, granddaughters, and great granddaughters, with the most marvellous success—in fact, no ponies in England are comparable to what have been produced in this seemingly unnatural way. They have good constitution, plenty of bone of excellent quality, and most charming all-around action. When standing they resemble very small hunters; in action they are hackneys.

As proof of how such ponies are valued in England, I may state that in 1895 six mares, from yearlings upward, were sold under the hammer for the phenomenally high average of £721, about $3500 each. Who would not like to raise and sell ponies at such figures?

I had almost omitted to make mention of the Irish Connemara pony —a useful animal of from 12 to 14 hands high—that is said to have been descended from Spanish stock left in the country when the Armada was defeated by Great Britain.

REPORTS OF CASES.

RUPTURE OF THE LIVER.

By W. J. Martin, V.S.,
KANKAKEE, ILL.

On August 27th of this year I was called to see a black gelding, aged six years, weighing 1500 pounds, used for trucking purposes by a wholesale grocery firm of this city. The horse was first noticed to be sick at 4 o'clock, and I saw him half an hour later. At noon he ate his usual feed, and was, to all appearances, in perfect health. At the time of my examination he was still hitched to the truck with his mate.

He presented the following symptoms: Pulse quick and weak (70 per minute); mucous membrane of a pale, blanched color; ears cold and hanging pendulous; head hanging down in a listless manner; lower lips pendulous; legs and body very cold; temperature in rectum 101½° F.; respiration slightly above normal. Frequent attacks of dyspnœa, with reeling gait, when the animal was made to move backward or his head was raised higher than the natural position. Not the slightest abdominal pain was shown by the animal, nor was there any perspiration on any part of the body. When placed in his stall the horse would eat at times a small amount of hay between the attacks of dyspnœa, which would come on every few minutes. Diagnosis: Internal hemorrhage from some large organ. Prognosis: Death. This took place some time during the night.

Post-mortem August 28th, 10 A.M.: Body well nourished—in fact, very fat. On removing the skin from the body the subcutaneous tissues were seen to be stained a deep yellow color. This staining was most apparent over the loins and hind limbs. On opening the abdominal cavity a rush of blood took place in such an enormous quantity that it appeared as if the horse had been bled to death into his own abdomen. This was just what had happened. On the lower border of both the right and left lobes of the liver were large rents, extending through the outer serous covering, Glisson's capsule, and nearly through the parenchyma of the gland. The entire portion of the liver above the rupture was of a dark red color, smooth to the touch, and very dense in structure. The external covering of the gland—Glisson's capsule—was of a tough, leathery consistence. On section of the liver, numerous white spots were visible around the margin of the hepatic lobules, presenting that well-known appearance referred to as "nutmeg" liver. The parenchymatous structure of the liver was soft and easily broken down on pressure by the fingers. The portal vein was filled with a gelatinous plug of serum. The other bloodvessels of the gland were partly filled with coagulated blood of a dark brown color. No cicatrices of previous rupture of small bloodvessels nor of perihepatitis of the organ were to be seen upon the external surface of the liver. The liver was greatly enlarged, both in circumference and diameter, and weighed forty-two pounds. The kidneys were much enlarged and of a dark red color, due, no doubt, to blood extravasation. Their structure was also soft and easily broken down under pressure. The abdominal parietes were covered with a thick layer of adipose tissue. The heart was large, though not abnormally so; each ventricle was contracted and contained a small amount of dark, coagulated blood. The lungs were of a pale, anæmic color, due, no doubt, to the thorough draining out of the blood from their tissues. The bronchi were partly filled with frothy mucus. The spleen was much enlarged and engorged with blood of a dark brown color. The intestines were normal, with the exception of the mesentery and omentum, they being abnormally covered with fat. The flesh of the body was almost bloodless and of a firm consistence, so much so as to cause comment from a butcher who was standing by, he remarking that the flesh was as free from blood as that of any beef he had ever seen bled to death.

This horse had been lightly worked nearly every day for the past two years. During this time, although highly fed, he was never known to have been sick. The horse had not been subjected to any unusual exertion previous to the fatal attack—in fact, the horse at the time he was first noticed to be sick had been standing still for some time waiting for a load of goods. He could not have been kicked by his mate in the stable, as each horse stood in a separate stall or with several unused stalls between them. It would appear as if the liver, which had been gradually enlarging for a long time, had finally reached the limit of its distention and consolidation, and spontaneously its parenchymatous structure gave way under the great strain it had been so long subjected to. What seems most surprising in this case was the entire absence of all abdominal pain and sweating—two symptoms that have hitherto been considered classical by veterinary authors in rupture of the liver.

AN ABNORMAL CONDITION.

By H. S. Perley, V.S.,
ST. ALBANS, VT.

The subject, a standard-bred horse colt, born March 2, 1897, was perfectly formed with the exception of his forelegs from the knees down. The metacarpal bones are twisted quarter way round, which brings the extensor tendons at the side of the leg instead of the front. There is contraction of these tendons, which bends the legs, as described, and compels the animal to walk on the side of his foot and leg as far up as the fetlock-joint.

The colt moves around without any great inconvenience, and can trot as fast as a man can run. He has been brought up on a bottle since he was three weeks old, and at the present time is growing nicely.

FOUR CASES OF PARTURIENT APOPLEXY.[1]

By W. E. McCray, V.S.,
OIL CITY, PA.

I desire to call your attention to four cases of parturient apoplexy that I have attended within the last six months. As you are all familiar with the pathology and symptoms of this disease, I will not enter into details.

Case I.—A thoroughbred Jersey cow had her calf about 8 o'clock one evening, and went down about 3 o'clock the following morning. This was a well-marked case, with all the symptoms prominent; paralysis of the posterior extremities and contraction of the muscles of the cervical region, with head crooked tight to flank, emitting a grunt at every respiration.

The following line of treatment was adopted: A purgative was administered, a mustard-plaster applied to the back, hot water injections, and ice applied to the head. Stimulants were given every two hours. About 5 o'clock in the evening of the same day I was called again. The animal was undoubtedly no better, and coma more pronounced. I gave her one grain of eserine sulphate, intravenous injection, and applied the pump. Inside of twenty minutes the tension of the cervical muscles relaxed, and she showed prominent symptoms of the physiological actions of this drug. She had two evacuations of hard feces, and then seemed to rest easier with head erect. The following morning I gave her one-half grain more of the drug, and by noon she was upon her feet. The subordinate treatment consisted of stimulants with nux vomica in small doses.

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[1] Presented to the semi-annual meeting of the Pennsylvania State Veterinary Medical Association, Franklin, September 21, 1897.

Case II.—A grade Durham that went down sometime the second day after calving. Was seen by me about six hours after going down. I at once administered one-and-a-quarter grains of eserine, and applied the pump. She responded to the action of the drug. I also gave her a purgative, and ordered stimulants every hour. She was on her feet in six hours, and eventually made a good recovery.

Case III.—An old grade Jersey. Had gone down the third day after calving, and had been down twenty-four hours when seen by me. The owner said he had given her "two quarts of crude oil and two pounds of salts." I gave her treatment the same as in other cases, and she was upon her feet the next morning and lived six days. She then died with mechanical pneumonia, due to the administration of the oil and salts.

Case IV.—A high-bred Jersey. Had her calf in the morning I was called the same evening, the owner stating that "something ailed the cow." She was down by the time I got to the field. I immediately gave her treatment as heretofore mentioned. That night she lay in the rain. I called the next morning, gave her the second injection, and hauled her to the barn on a stone-boat. About 11 o'clock that morning she rose to her feet, gained strength during the day, and when I made my last visit that evening she was up and the calf was sucking.

Now, gentlemen, in bringing these cases to your notice I do not wish to be understood as advancing any new ideas, but simply to give you my experience in the action of this drug in the treatment of parturient apoplexy.

I. TENOTOMY. II. RESECTION OF NECROTIC PARTS OF THE SOFT TISSUES OF THE FROG FOR NAIL-WOUND.[1]

By Otto G. Noack, V.S.,
READING, PA.

Case I.—On December 3, 1896, I was called to see a bay horse, twelve years old, 16 hands high. The owner reported to me that the horse had to pull a very heavy load about six months ago, and had limped ever since. By and by the leg shortened, and the horse began to walk on the toe, then got worse, being unable to walk at all. Upon examination I found excessive volar flexion of the left front hoof in the coffin-joint, caused by contraction of the flexor perforans. In the region between the first and second third of the metacarpus there could be noticed a thickening in the form of a hard and sharply-defined swelling. My diagnosis was chronic tendinitis. I informed the owner that the prognosis was not very favorable, and the only treatment to be applied was tenotomy. As the horse in that condition was worthless, the owner consented.

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[1] Read before the semi-annual meeting of the Pennsylvania State Veterinary Medical Association, Franklin, September, 1897.

As the general practitioner has not much time to lose, and the operations have to be made with little assistance, it is an impossibility to go according to rules and lines, and one has to be guided by circumstances. I at first disinfected the leg as well as was possible under the circumstances, injected right above the thickening 5 grammes of a 10 per cent. solution of cocaine, and, putting the twitch to the horse's upper lip, I made an incision through the skin with a pointed bistoury right at the swelling on the outside, and after this I inserted a blunt tenotome, with its surface lying close to the tendon, till I felt it on the inside, and turned the knife against the tendon, and, cutting it slowly, the hoof came down suddenly with a loud noise before the tendon was completely cut through, and the horse could stand on his foot. Profuse bleeding showed that bloodvessels had permeated the thickening already; after cleansing with a solution of creolin I applied an aseptic bandage. Two days afterward I opened the bandage and found that suppuration had set in, perhaps by hair or other foreign body that had gained access during the operation. The wound was cleaned every other day with creolin. After the third day of operation the horse got daily exercise for about ten minutes for three weeks. In this time the wound had healed, and the horse, by walking on the old shoes, had a very bad plantar flexion. To avoid this I gave the horse a shoe without calking, but thickened heels, the toe cut very short, with rolling motion, and by this I overcame the plantar flexion. The horse was put to work three weeks later, and is working ever since.

CASE II.—In the middle of January, 1897, I had to attend a horse which had tread on a nail some time before. The wound did not appear to heal, and occasioned great pain and caused the horse to walk very lame. I cut away some horn around the wound and recommended soaking the horse's foot in a bath of creolin. In four weeks I was called again, with the remark that the wound had healed, but the horse still remained lame. I recommended blistering around the coronary band, which was done, but without success. I then told the owner the only thing to be done was to operate, as there must be a lesion of the bone, with suppuration of necrotic parts of the tissues where the nail went through, but it was doubtful if the operation would be of avail. After two months' consideration I was instructed to operate upon the horse, as in this condition he was worthless.

On June 6th I performed the operation, casting the horse and paring the inner side of the frog off to the plantar cushion, and soon found the sore left by the nail, showing a black spot, reaching in the plantar cushion nearly three-fourths of an inch, of the same dark color, being necrosed. I removed the diseased parts and applied an aseptic bandage, and during four weeks I only changed the dressing four or five times, the wound healing without any suppuration whatever. The horse was put to work without showing any lameness.

The Board of Aldermen of New York City has adopted new rules for bicyclists and drivers on highways. The rules give to those going north and south the right of way over those going east and west, and make it a misdemeanor for a citizen not to yield the right of way to an ambulance, police wagon, fire-engine, or doctor's wagon, provided the doctor has a police permit. Riders of bicycles and drivers on highways must keep to the left when overtaking another going in the same direction, and above Thirty-ninth street they cannot turn unless fifteen feet above the vehicle behind. Drivers must raise their whips or give some kind of a signal when about to turn a corner or to stop. Bicyclists must carry a bell not more than four inches in diameter, so that they may not be mistaken for a fire-engine, ambulance, or a doctor. Eight miles an hour must be the limit of speed, and no more than two may ride abreast. Coasting is forbidden below One-hundred-and-twenty-fifth street. Bicycle-riders must carry lamps as at present. Drivers of vehicles must be more than sixteen years old; heavy wagons must not go more than five miles an hour on the streets, and vehicles other than bicycles are forbidden to turn corners faster than three miles an hour. Riding on the sidewalk is prohibited, but wheelmen may trundle their machines in single file. Bicyclists must not carry children less than five years old on their wheels. The penalty for violation of any of the rules is ten dollars.

EDITORIAL.

THE NASHVILLE MEETING.

THE last meeting of the United States Veterinary Medical Association was one of the largest and in all respects one of the best in the history of the organization. It was with some trepidation that many of the older members noted the decision to meet at the furthest point south reached by the Association, but nevertheless they turned out in force and did all they could for the meeting. It should not be thought that because the United States Veterinary Medical Association has never met so far south before that this vitiates in any degree its unchallenged claim to the title of a national organization. This, we believe, is the first instance in which it has been invited to a Southern city, and the members of its Executive Committee gladly accepted the invitation when it came. The Association has never met at points as far west as Denver or San Francisco, and this is largely because the veterinarians in these places and the veterinary organizations do not strive to obtain the meeting. Why should the veterinarians of any city or State or any local veterinary society endeavor to obtain a meeting of the United States Veterinary Medical Association in their respective localities? Ask Nashville, ask Tennessee. The South is the most rapidly growing portion of this country, and many portions of it have developed great industries and commercial enterprises that are adding rapidly to their wealth and general prosperity. The breeding of farm animals has not been neglected, and is gradually developing in harmony with the improved agricultural conditions. The people for some time have been awakening as to the necessity of a purer food-supply, and especially a sanitary supervision of meat and milk.

All of these influences have tended to create a demand for veterinary services and to open the way for veterinarians; but for some reason the recognition of the profession in the South has not been as rapid as in many other portions of the country. Perhaps this can be accounted for, in part, by the circumstances that the veterinary profession is so new in that region; that the advances that veterinary science has made during recent years have not received general recognition; that the value of veterinary science is not fully understood, and the fact that numerous colleges are turning out well-trained men, fully equipped to deal with the numerous intricate questions that come within the field of the veterinarian, has not been appreciated in that section. When the United States Veterinary Medical Association met in Nashville and drew to that city some of the most eminent pathologists and bacteriologists and men of science in the country—men of eminence, with national reputations; men of wide influence—the eyes of the people were opened. The newspaper press of the city reported the meeting fully and intelligently. A number of prominent sanitarians and breeders attended some of the sessions, and thus served still further to distribute the influence of the meeting.

It is safe to say that the Nashville meeting marks the beginning of a new era in veterinary progress in the South, provided the Southern veterinarians actively follow up and develop the impression that has been made.

The general character of the papers read and the discussion upon them was of a high order, and showed much careful research and diligent preparation.

The quality of veterinary work in this country is steadily improving under the leadership of the United States Veterinary Medical Association, and this is clearly indicated to the intelligent observer who studies the proceedings. These proceedings constitute a permanent record of the highest attainments of the general profession, hence it is important that they should be printed in a form that is alike creditable to the Association and the profession. It is pleasant to note that the Publication Committee, led by its active and energetic chairman, Dr. Williams, has promised the printed report within four weeks after the close of the session. The report is to be a full and accurate account of the meetings, to contain all of the papers and principal discussions, an official record of all the motions and resolutions, and is to be printed on good paper in a neat, workmanlike manner, fully equal to the present standard; and, crowning all, is to cost less than the amounts that have been expended for this purpose for a number of years. For the report of the minutiæ of the meeting we refer our readers to this publication, which will be in their hands by October 15th.

As a variation from the routine of scientific work, the election of officers occurred as a welcome diversion. The result of the election is most encouraging to all who are interested in the organization. As the meeting was held in the South, it was thought proper to elect a Southern man to the presidency. It was thought that this would be an appropriate act, and would tend to increase the influence of the organization in its new field. As a result of this sentiment, Dr. D. E. Salmon (whose legal residence is in Maryland) was elected to direct the Association during the coming year. Dr. Salmon has the true interests of the veterinary profession at heart, and, as chief of the Bureau of Animal Industry, is the leading veterinarian of the United States. Therefore, his selection by his Southern colleagues and other friends and admirers is a most happy one, and serves most agreeably and impressively to emphasize the real Southern character of the recent meeting. Another result of this election was to abolish the old-time precedent that an acceptable executive should be re-elected to a second term. It was felt that the present was an opportune time for this innovation, because Dr. Osgood's administration was placed beyond criticism by the energy and force which characterized his presidency; the progress of the organization under his direction has been so satisfactory, and the recommendations in his annual address so original, salient, and marked by universal approval.

The efficient Secretary, who has served the organization so faithfully for two years, was re-elected, and we are fortunate, indeed, in having Dr. Stewart again in charge of the vital matters under his care. Dr. Robertson, for the first time in years, failed to put in an appearance. It is needless to say that he was sadly missed, and the absence of his jovial smile and cheery words left a great vacancy. At his own request he was not re-elected to the post of Treasurer—one that he has filled so well for these many years—but was succeeded by that able and energetic young veterinarian, Dr. William Herbert Lowe, of Paterson, N. J.

As Vice-presidents, the Association has been successful in enlisting the services of Drs. T. B. Rayner, Rayen, and A. T. Peters.

The resolutions adopted by the Association, which will appear in another place in this JOURNAL, mark the trend of veterinary thought and effort at this time. Let all veterinarians read them carefully and use their utmost endeavors to further the ends indicated by them.

It is scarcely possible to express adequately the appreciation of the members for the entertainment provided by the local and the Southern veterinarians. The ladies, who were present in greater number than ever before, were taken care of by Mrs. Rayen and a corps of delightful assistants who entertained with true Southern hospitality.

As an echo of the recent meeting and a herald of the one that is to come, the question of the meeting-place for next year is prominent in the minds of all members of the organization. Boston, Washington, Omaha, and St. Louis are the candidates already in the field, and the claims of each are being advanced urgently. St. Louis and Omaha represent the middle West, Boston the East, and Washington the Southeast. As a reason for meeting in the West, it is claimed that the influence of the organization is needed there. As a reason for meeting in the East, it is held that as the meetings gyrated between Boston and New York for so many years, the veterinarians and local organizations of these places became accustomed to depend upon them for their inspiration and for the initiation of all new movements. Since the meetings have not been held in Boston for a number of years, a void has occurred, and the profession there is suffering in consequence. This question is one of the most weighty that will come before the new Executive Committee; but as our new President will undoubtedly appoint as members of this committee representatives from all of the important centres of veterinary work and life in the country, there can be no doubt that it will be settled in the way that will be best for the profession.

WILL IT PROVE A WISE DEPARTURE?

THE issues that decided the election of the President of the U. S. V. M. A. at Nashville for the ensuing year mark a departure from the custom of according a second term in the Association, from its birth to the present time, with perhaps two exceptions—one of which we have no disposition to discuss, because it involves a deceased member; the second was under most extraordinary circumstances, and occurs only once, perhaps, in an organization's history. We refer to the decision that the President shall be elected but for one term.

As was well said by the outgoing President, he is virtually in office for one year before he can announce or outline his policy, and all his plans must, under the new rule, fall to his successor to accept and carry out as he may determine their merits. While, in common with every faithful member to Association interests, we bow to the will of the majority and rejoice that our interests in the national organization are to be confided to the hands of one worthy in every sense of the high honor he has received, and fully assured that his interest will be the welfare of all, his administration rank among the highest and best ever given by a chief officer, we still are not sure of this being a wise departure. We are not unmindful of how few are the chances for a member to become President during an average length of years of active association service, and of how fortunate we are in having so large a number of available men for this place; still the duties of this office, as our Association continues its present line of work, are onerous, and he who receives this recognition finds that his shoulders are freighted with responsibilities that grow greater and more exacting every year.

Was this position solely one of honor, as in at least one organization similar to ours, where, after many years, section work has been established—each section with its corps of officers to direct and control the work of its department—we could join with others in the belief that this was a movement in the right direction.

Again, does it not force upon us, in this departure, the decision that in the future we must have our organization divided into sections? And this, in turn, forces the query, Are we ready yet to divide into sections? Let us look at the situation for a few minutes. Scarcely ten years of active work have passed over our heads; we have barely reached five hundred in number out of possibly three thousand in the United States; we have all had a narrow enough education, to say the least; we have never had a full hundred of our members present at any one meeting; and of the last six meetings less than fifty can be counted who had been in regular attendance at each annual convention—not enough to officer properly five sections, as already indicated, and no audience for any of these to listen to the papers and discuss the questions. Again, how many of us know much about everyday practice, and nothing at all of State medicine or those wider subjects of greatest public importance? And is it not imperative for us to go to our national gatherings to get in touch with these movements, that something may be done for the common good in the community where one lives besides the advancement of one's selfish interests? With such a small attendance at our national gatherings, are we ready to divide into sections, and thus lose the value and the force of our deliberations and conclusions, as we must do when coming only from small sections of our Association?

The questions of only one term for a President and the division into sections are serious and far-reaching problems for us to well consider. And every possible outcome of these movements should be carefully weighed, lest the good work of the past ten years be endangered and our power as a scientific organization and leader of public sentiment in the veterinary sanitary world become impotent for good and barren of results. The great field of work and usefulness now so close within our grasp, gained after so many years of hardship and struggle, must not be endangered for a moment by any experimental steps or projects of uncertainty in our present numerical strength.

GLEANINGS.

THE EFFECTS OF POTASSIUM IODIDE ON A LARGE TUMOR.—The published account by Malkomis on the cure of a schirrhous cord by large doses of iodine given internally induces me to publish the following: On March 5, 1896, a seven-year-old Wallachian, which had a large tumor on the abdomen, extending from the elbow to the flank, was brought to the surgical clinic of the Stuttgart High School. The surface of the swelling was covered with scales and cracks caused by repeated blisters. The consistence of the tumor was firm and harder than the muscles of the croup and back. From a clinical point of view the author deemed the growth a sarcoma.

On account of the great dimensions of the tumor, an operation was deemed inexpedient. The swelling was well rubbed with Lugol's ointment (iodine, 1 part; pot. iod., 10; lanolin and vaselin, of each 50), and then covered with a pressure-bandage, inside of which was placed a piece of cloth soaked in 2 per cent. lysol solution, and the whole covered with a folded saddle-blanket. At first the horse received very little drinking-water. Eserine was then given, also a ball containing aloes, calomel, and croton oil. On every third day thirty grains of potassium iodide was given in the drinking-water. Later the horse took daily twenty grains of potassium iodide in the drinking-water. The treatment proved wholly favorable, the tumor got small and softer, and four weeks after the horse was at work again.—*Veterinary Record.*

Now that contagion is known to be the principal factor in the spreading of bovine tuberculosis, the importance of separating healthy animals from those that are infected is generally recognized. Up to this time this has been a very difficult undertaking, as it was almost impossible to say with certainty which animals were affected and which not. It is possible for an animal to be a prolific source of infection, and yet show no physical signs of tuberculosis. To-day, by the use of tuberculin, all the diseased animals can be singled out, even if the disease is in its earliest stages and the parts affected very insignificant. Concentrated tuberculin is not adapted to administration, and proper dilution at the time of use is very difficult. For this reason tuberculin is now prepared diluted ready for injection, and is supplied in vials containing from 2 to 250 doses, according to the quantity desired.

CONTROL WORK.

Pennsylvania.—A local outbreak of anthrax at Reynoldsville, adjacent to some tanneries, was investigated during September by State Veterinarian Pearson, assisted by Dr. F. F. Hoffman, and placed under control by the adoption of sanitary safeguards.

Maryland.—The following communication will explain to the veterinary profession the many newspaper reports current over the country as to the great losses now occurring in Maryland among horses:

DEAR DR. HOSKINS: In reply to your inquiry, the disease in Maryland is the same as you have in Pennsylvania—the same as is written upon by Michener in "Report on Diseases of the Horse," Department of Agriculture. It is much more severe here now, however, than ever before. We are trying hard to find out the cause. The post-mortem results are invariably negative, save a suspicion of inflammation of the stomach. Brain apparently normal. The symptoms are: 1. Drowsiness. 2. Extreme weakness. 3. Loss of power of locomotion; animal down and unable to do more than kick about. 4. Semi-coma. 5. (Generally) coma. 6. Death, in from twenty-four hours to a week; generally about forty-eight hours from first appearance of symptoms. *Etiology:* The appearance of the disease in animals on pasture, and subsiding of the disease when the animals are put in the stable. *Cause:* Poisonous weed. Experiments contemplated in feeding. Will report further observations. Have two veterinarians in the field.

Yours truly,

A. W. CLEMENT.

One of our American equine dentists has reached London, and the usual methods of soliciting trade and appealing to owners of horses are being resorted to.

ALWAYS TO YOUR INTEREST TO READ THESE SELECTIONS.

The Department of Agriculture will inaugurate a study of the needs of foreign countries as to the type and quality of horses required, with the hope that our horsebreeders may turn their attention to the production of such horses as will be assured a foreign market. The consular and diplomatic departments will be made the medium for obtaining such information. The purchase of horses for foreign markets the past two years has been such as to establish the conclusions that our facilities for raising are superior to any country in the world, and, when the type and character of the horse needed is better known, it should not be difficult for us to obtain this market.

Prof. Cossart Ewart has succeeded in obtaining another hybrid by the same zebra sire. This one is from an Irish cob mare, bay, with black points, 14.1 hands high. It was twelve days beyond the usual time of a mare. The hybrid colt is much lighter in color than the first one; the body of a reddish tinge or light bay, and the stripes red-brown, not so strongly black as the first hybrid. The first mare used in this telegonic experiment was subsequently bred to an Arab horse, and is early due to foal. Much interest is wrapped up in the birth of this foal.

A recent sale at Belfast, Ireland, of horses, all choice selections, taken there from Kentucky, ranged for the twenty-nine sold from $204 to $817. It is said that over two thousand prospective buyers attended this sale.

Grass-bred and fed Western bronchos recently completed a trip of 2400 miles under the saddle in less than three months. They are said to have arrived in good condition. Surely no better evidence of endurance could be asked for.

The medical societies of New York State are taking such action as will abate the free dispensary nuisance. The aid of the Legislature will be invoked. This step in the Empire State will be followed in other States, for it is growing more difficult every year for young men to enter practice, though better equipped than ever before. It is a wrong for a State Legislature to appropriate moneys for the great proportion of these institutions that only exist by favor of the public treasury—not by public demand.

A loss in a racing greyhound bitch was recently decided in the English courts. The expert testimony was on the existence of certain pathological adhesions in the chest, as to the length of time said adhesions had existed.

Strychnia is said to have been discovered in an analysis of portions of food given to a promising two-year-old in the $7500 colt race at Goshen, N. Y., in September. Hanging would be too good for the one committing such a crime.

Glasgow, Scotland, held a public meeting in September to discuss measures and means of stamping out glanders in that city. Without proper restraint or control it seems that there have been dispersal sales in that city of large numbers of horses from infected stables which for years had not been free from this serious disease. Surely there should be an awakening of public sentiment to the need of district inspectors in all large cities to save the great monetary losses incurred, not to mention the protection to man from this loathsome disease.

"Old Nig," a famous bus-horse of Addison, N. Y., died March 31, 1890, at the age of forty years. He made 83,760 trips between the station and the hotel, and is estimated to have consumed sixty-two tons of hay and 8307 bushels of oats.

A LIBRARY SECURED THROUGH A BALKY HORSE.—While Ex-Governor Flower, Ex-Governor Cornell, and Hon. Joseph Hendrix were driving over the Cornell campus, near the veterinary department, one of the horses suddenly became balky and refused to go, although repeatedly urged to do so by the whip of the driver. The party, therefore, went into the building to await the submission of the horse, and while there met Prof. James Law. The library of the department only contains fifteen volumes, and Mr. Cornell suggested to Ex-Goverenor Flower that he contribute enough to increase the number to a respectable amount. Mr. Flower turned to Dr. Law and asked him what amount would be needed, to which the doctor replied $5000. To the infinite surprise of those present Mr. Flower drew out his check-book and made out a check for the requisite amount. He then returned to the carriage with his companions, and the horse, having come to a proper frame of mind during their absence, started off without any further protest.

The more thorough the light shed upon the serum-treatment of hog-cholera, the more promising its results become, and the greater the hopes entertained that it will prove a solution of this great scientific question to the veterinarians and monetary burden to our stock-raisers.

AMONG THE COLLEGES.

UNIVERSITY OF PENNSYLVANIA.

Dr. John Marshall has been succeeded by Dr. Leonard Pearson as dean of the Veterinary Faculty. Dr. Herman A. Christman has succeeded Dr. C. E. Fouse as assistant demonstrator of veterinary anatomy. Dr. Milton E. Conard, in addition to being demonstrator of veterinary obstetrics, will also demonstrate veterinary surgery, as Dr. A. Salinger, who occupied this position, has been dropped from the list. Dr. Clarence J. Marshall will occupy the position of demonstrator of the theory and practice of veterinary medicine. Harrison K. Caner has been added to the Board of Managers. Dr. William G. Shaw is at present house-surgeon. A course in bacteriology is now required from second- and third-year students.

CHICAGO VETERINARY COLLEGE.

Dr. James Henderson has succeeded Dr. M. R. Trumbower as professor of cattle pathology and milk- and meat-inspection, and Dr. S. E. Sayre has been succeeded by Dr. A. E. Flowers as professor of dental surgery. Dr. A. S. Nesbitt is assistant to the chair of theory and practice in place of Dr. F. R. Davis, of last year. With this session the college institutes a post-graduate course. Dr. Glass' translation of Dr. Müller's work on *Diseases of the Dog* has been added to the college's list of text-books.

A horseshoe, comprising an India-rubber block forming the body and recessed in the centre to leave the sole of the horse's hoof exposed, a protective metal band placed round the outer edges of the block, the metal band having projecting parts embedded in the rubber block, and a membrane over the recess, which is perforated to allow egress and ingress of air, is a recent invention.

SOCIETY PROCEEDINGS.

U. S. V. M. A.

THE STORY OF NASHVILLE.

The Journey.—For some five days prior to the opening of the Thirty-fourth Annual Convention there reached Nashville from the remotest sections of our country the most representative body of veterinarians that has ever gathered together on American soil, all imbued with great determination to give their best efforts for the consideration of those subjects of so much importance to the welfare of the profession. Before convention days had arrived the State of Washington was vieing with Massachusetts in their interest in coming events. Pennsylvania, from its most eastern and western points, had its devotees there to friendly contest with the Empire State their relative strength in numbers in attendance. Louisiana was early on the field, and, as she referred to the others yet to come, she smiled as she noted on every side the keen interest of the South in this first gathering in its territory. The Central West sent her most representative members of the profession, and with those from more northern points there was such a rivalry as to distances travelled that one would want to know whether there could be additional miles to the journeys so many had made to this Mecca for 1897. Down from the "Hub," from the "Metropolis," from the "City of Churches," the "Quaker City," the "Monumental City of the South," and the "City of Magnificent Distances" there rolled over the tracks of the Southern Railway, through the beautiful "Land of the Sky," so well and appropriately named, many of those whose faces are ever looked for and always welcomed at our annual gatherings; from the "Windy City," "Forest City," "Queen City of the West," "Railroad City," "Falls City," and "Mound City," down the Mississippi Valley, every train from distant points added to the gathering crowd which has made Nashville famous in Association circles. The doors of hospitality of this beautiful city, nestling within the confines of hilly and mountainous country on all sides, swung inward for the veterinary profession until their creaking hinges would fain have broken if there was anything additional needed to insure our welcome, make pleasant our stay, and to speed our parting with such a wealth of pleasant, happy recollections of the Southern hospitality enjoyed in the "Rock City."

Who Were There.—Drs. E. B. Ackerman, Brooklyn, N. Y.; A. H. Baker, Chicago, Ill.; R. R. Bell, Brooklyn, N. Y.; R. H. Bird, Helena, Mont.; T. S. Butler, Starkville, Miss.; C. A. Cary, Auburn, Ala.; A. W. Clement, Baltimore, Md.; J. W. Connoway, Columbia, Mo.; T. B. Cotton, Mt. Vernon, Ohio; W. H. Dalrymple, Baton Rouge, La.; Charles Ellis, St. Louis, Mo.; H. D. Gill, New York City; J. O. Greeson, Kokomo, Ind.; T. D. Hinebauch, Fargo, N. D.; N. P. Hinkley, Buffalo, N. Y.; W. Horace Hoskins, Philadelphia, Pa.; W. H. Kelly, Albany, N. Y.; James Law, Ithaca, N. Y.; W. H. Lowe, Paterson, N. J.; M. H. McKillip, Chicago, Ill.; J. C. Meyer, Jr., Cincinnati, Ohio; S. B. Nelson, Pullman, Wash.;

F. H. Osgood, Boston, Mass.; E. P. Niles, Blacksburg, Va.; W. B. Niles, Ames, Iowa; J. M. Parker, Haverhill, Mass.; Leonard Pearson, Philadelphia, Pa.; T. B. Pote, Terre Haute, Ind.; W. C. Rayen, Nashville, Tenn.; James B. Rayner, West Chester, Pa.; T. B. Rayner, Philadelphia, Pa.; D. E. Salmon, Washington, D. C.; J. W. Schiebler, Memphis, Tenn.; F. S. Schoenleber, Morris, Ill.; E. H. Shepard, Cleveland, Ohio; M. Stalker, Ames, Iowa; S. Stewart, Kansas City, Kan.; A. S. Wheeler, Biltmore, N. C.; T. E. White, Sedalia, Mo.; W. L. Williams, Ithaca, N. Y.; J. F. Winchester, Lawrence, Mass.; A. W. Bitting, Lafayette, Ind.; George B. Blackman, Rome, Ga.; S. H. Caldwell, Chicago, Ill.; R. H. Drummond, Birmingham, Ala.; T. Eisenman, Louisville, Ky.; H. D. Fenimore, Knoxville, Tenn.; M. Francis, College Station, Texas; C. A. Geddes, Tenn.; J. M. Good, Chattanooga, Tenn.; C. W. Heitzman, Jr., New Orleans, La.; J. W. Jamieson, Paris, Ky.; J. R. Mitchell, Evansville, Ind.; M. O'Connell, Holyoke, Mass.; Joseph Plaskett, Nashville, Tenn.; E. M. Ranck, Philadelphia, Pa.; J. C. Robert, Agricultural College, Miss.; J. C. Foelker, Allentown, Pa.; N. Rectenwald, Pittsburg, Pa.; J. C. Blankton, Farmville, Tenn.; G. D. Bray, Columbia, Tenn.; R. E. Collins, Memphis, Tenn.; T. H. Hagyard, Nashville, Tenn.; S. E. Jago, Shelbyville, Tenn.; J. P. Rauch, Memphis, Tenn.; T. W. Scott, Nashville, Tenn.; R. J. Michener, Lebanon, Ohio; F. S. Roop, Blacksburg, Va.; C. Barnwell Robinson, Washington, D. C.; D. K. Smith, Toronto, Ontario; George R. White, Chapel Hill, Tenn.; F. Abele, Jr., Quincy, Mass.; J. E. Aldrich, Memphis, Tenn.; G. E. Browning, Boston, Mass.; B. F. Cockrill, M. D., Nashville, Tenn.; L. E. Morgan, M.D., Baton Rouge, La.; J. D. Plunkett, M.D., Nashville, Tenn.; Ferdinand Smith, Chicago, Ill.; Mr. Harold Sorby, of the Pasteur Vaccine Co., Chicago, Ill.; Mr. Frederick Krey, representing the firm of John Reynders & Co., New York City; N. P. Hinkley and son, Buffalo.

The ladies present were Mrs. A. H. Baker, R. R. Bell, J. W. Connoway, T. Bent Cotton, M. Francis, H. D. Fenimore, H. D. Gill, T. H. Hagyard, John R. Hart, W. Horace Hoskins, M. H. McKillip, F. H. Osgood, Rapin, W. C. Rayen, C. B. Robinson, E. H. Shepard, F. S. Schoenleber, Misses Breast, Hogan, Miller, Mills, McDonnald, Rectenwald, Watson.

What was Done at Nashville.—The welcome of the press at Nashville was very cordial, indeed, and the exhaustive daily reports of the *American* and *Banner* were very much appreciated by all who were present. The *Banner* daily reproduced on its pages photographs of many of the members, among others Drs. Osgood, Cary, Stewart, Williams, Hoskins, R. R. Bell, T. B. Rayner, James B. Rayner, Foelker, Ackerman, Gill, Hinkley, Stalker, and Pearson. That ever-to-be-remembered kindly and public-spirited chairman of the Entertainment Committee of the Exposition, Major John J. McCann, whose cheerful face and sunny disposition charmed all with whom he came in contact, was ever and anon present to add to the wealth of pleasure and enjoyment of our stay in Nashville. His attention to the ladies while our sessions continued, their conveyance to the Exposition in special cars, when the gates were lifted high for their entrance, and every door thrown open for their admission, not to speak of the feast spread so bounteously that they might satisfy every desire, are memories that leave impressions never to be forgotten and which make a country one in the common impulses, hopes, and aims that bind its people together.

The city's chief executive was represented on the morning of the opening of the convention by the Rev. W. T. Haggard. His welcome on behalf of the city was very cordial, and in that Nashville was the first Southern city to receive the honor of our convening that it was fully appreciated. As representative of Governor Taylor and the Centennial Exposition, Major John J. McCann extended the members and delegates the most hearty welcome, and with the warm heart of a true Southern entertainer he won by his greeting the close attention and the thorough appreciation of all that they were in the house of their friends. On behalf of the Association, Dr. Leonard Pearson responded, referring to our high expectations and hopes, and how rapidly and completely they were being realized. He referred to the high place Tennessee held in the ranks of breeders of valuable and high-bred live-stock, and that it was well for us to assemble at such a centre. Touching upon the importance of the live-stock industry, he said that if all domestic animals were destroyed great suffering would ensue. "There would be no horses or mules to till the fields; no beef, mutton, pork, milk, or eggs; no wool; no means of transportation in many sections, and no manure with which to maintain the fertility of the soil, under which conditions all business would stagnate and perish, the people suffer for want of food, and the land would become sterile. These were potent reasons why veterinary science is of the highest importance to the South, and the need of more and the best men of our profession in public positions was a question of vital importance." Speaking for the many representative veterinarians of the South for a generous recognition and support, he thanked the State, the city, and the Exposition for the warm welcome, and was already assured of a large and profitable meeting.

President Osgood then, in one of the most polished and scholarly addresses ever presented to the Association, gave thorough evidence of how well he had studied and considered the welfare of the Association, and made many salient suggestions for better enlisting the active interest of the entire membership—calling attention to the fact that a new President had to wait one year before he could outline his policy; suggesting for consideration plans to enable members to vote by proxy; to assist in the suggestion of suitable candidates for the elective officers; recommending greater uniformity in State laws and mutual recognition of certificates of State Boards of Examiners, and many other equally vital recommendations for the welfare and advancement of the interests of this organization as the national representative of the profession.

The Executive Committee was early to work on September 6th, with Drs. Osgood, Stewart, Hoskins, Hinkley, Williams, Cary, Bell, Pearson, and Stalker present, and Drs. Howard, Robertson, and Trumbower absent; as temporary appointees, Drs. Rayen and Gill. Chairman Hoskins called the meeting to order. The favorable recommendation for membership of the following-named applicants added this new strength to Association members: Ira K. Atherton, Marshalltown, Iowa; George B. Blackman, Rome, Ga.; S. H. Caldwell, Montgomery, Ala.; P. J. Cronon, Boston, Mass.; R. H. Drummond, Birmingham, Ala.; M. Francis, College Station, Texas; Joseph M. Good, Chattanooga, Tenn.; C. W. Heitzman, Jr., New Orleans, La.; D. King, Natchez, Miss.; C. N. Kinnell, Pittsfield, Mass.; J. C. Norton, Phœnix, Ariz.; A. W. Bitting, Lafayette, Ind.; Joseph Plaskett, Nashville, Tenn.; E. M. Ranck, Philadelphia; J. C. Robert, Agricultural

College, Miss.; G. R. White, Chapel Hill, Tenn.; D. P. Frame, Colorado Springs, Colo.

The resignations of Drs. Herbert Neher and Henry F. Leonard were accepted by the convention, and they will no longer mingle their names on the roll of honor of the national organization. The granting of the resignation of Prof. Theobald Smith was followed by his recommendation and unanimous election to honorary membership.

The charges of violation of the Code of Ethics in unprofessional advertising were not sustained against Dr. John Faust, of Poughkeepsie, who retains his name among the list of faithful ones whose many years have ever sustained every responsibility placed upon his shoulders.

The utmost spirit of leniency prevailed among all toward the delinquents, and with a few exceptions additional time was recommended and given. Where desired, their names were temporarily suspended, to avoid accumulations of additional dues, with power to reinstate by the Secretary on payment of dues already accrued.

The request of Dr. James B. Rayner for an investigation of certain published statements detrimental to his character in the *American Veterinary Review* for August, 1897, over the signature of Dr. James Law, charging him, on alleged early statements of that periodical, with connection with the sale of diplomas, was granted and a committee appointed, consisting of Drs. Bell, Williams, and Pearson, with the instructions that they report at the next meeting of the Association, or earlier, through the veterinary periodicals, if their investigation warrants the same.

The Executive Committee have cited Dr. Gerald Griffin, of Fort Reno, Indian Territory, to appear before them and answer charges of violation of the Code of Ethics in advertising secret formulas of remedies; also Dr. J. H. Wattles, of Kansas City, Mo., for violation of the code.

Drs. Hempleman, McClellan, G. T. Netherton, and M. A. Piche sent in their resignations; but as they are in arrears with their dues, the Secretary was instructed to inform them that their resignations cannot be acepted until these arrearages are liquidated.

The reports of the various standing committees followed, showing the completion of the local arrangements. The finances of the Association were shown to be in better condition than for several years, exhibiting a surplus over all liabilities of $852.44. This healthy condition of Association finances called from the Secretary in his report a recommendation that we consider the advisability of reducing the dues from five to three dollars.

The Publication Committee in its report reviewed the cost of publishing the proceedings in the past, and, in estimating the cost for the present meeting, said that at least eighty-five dollars would be saved compared with the cost of 1896, based upon the same number of pages and character of work. A saving was also promised in the stenographic report of the meeting, and the proceedings complete, ready for distribution, in thirty days after delivery of matter to the printer; and as this latter was accomplished before September 15th, the members will receive their full reports by October 15th.

The Committee on Diseases, through the chairman, Dr. Theobald Smith, based their report on what seemed to be the field for this body, and urged special work only or the wiping away of this committee. The discussion and consideration of the report was to retain this committee, and that it should during the coming year make special efforts to gain information as to the extent, prevalence, and characteristics of outbreaks of osteoporosis and rabies, and thus contribute to more thorough original investigation of these diseases.

The Army Legislative Committee, through Chairman, J. P. Turner, reported their progress in the last session of Congress and their plans for the coming session. The death of one of their members, Dr. John R. Hart, was most feelingly and fittingly alluded to and how great a loss it was felt to be in this work.

No act of incorporation was yet obtained, but much light was shed for the benefit of the new committee, showing the existence already of a national act of incorporation obtained some years before.

An appropriation of fifteen dollars was made to the Pasteur Monument Fund, and other contributions were solicited.

The presentation of the resolutions prepared for the local committee at Buffalo was reported as completed, and the information afforded that a copy of the same had been placed in the City Hall of Buffalo.

The State Secretaries' reports were read by States and referred to the Publication Committee for abstracting and printing.

The afternoon session of the first day was devoted to the reading of the several papers on "Tuberculosis," the first being that of Dr. T. D. Hinebauch, on "The Action of Tuberculin on Healthy Cattle." A careful *résumé* of a series of experiments accompanied the paper, adding much to its value from a statistical point of view.

Dr. John M. Parker followed as one of the assigned speakers on this subject. His views were prepared in written form, part of which is published in this number, and the completion of which will follow in the succeeding issue. He covered the field of this subject in its several important aspects, and in his conclusions presented a very sanguine belief that its ultimate control and restriction would be accomplished through State aid.

Dr. E. P. Niles then presented the subject from the standpoint of municipal control of tuberculosis, its value, defects, and difficulties. He recommended that all municipalities require an exact supervision of all dairies and the testing of all herds; elimination of all tubercular animals, and central abattoirs for the preparation and sale of all meat.

Dr. Leonard Pearson in his remarks referred to the educational features of the campaign for the extermination of tuberculosis among the live-stock of Pennsylvania. He favored the education of cattle-owners to the dangers of the disease and the advantages to them of having it eradicated. This method of procedure was winning its way in Pennsylvania, and promised excellent results and at a comparatively small expense.

Dr. A. W. Clement referred to the several plans suggested for its suppression through State measures, and believed that much education of the people and those engaged in the live-stock industry was yet to be done. He questioned the right or justice of using State money in paying for diseased and worthless animals.

Dr. D. E. Salmon favored proper supervision of the meat of tubercular animals, and when but slightly affected its use, under proper cooking, was not dangerous, and the saving of this large loss would contribute much to the solution of the control of this all-important problem.

Dr. James Law in his remarks made a strong point for uniform State laws of control and regulation, as the police regulations of one State often resulted in many diseased ones being sent to adjoining States.

Drs. Cary, Stalker, Lowe, Parker, and Gill participated in the discussion, bringing out many salient points.

The deaths of Dr. O. H. Flagg, of New Bedford, Mass., one of the oldest members, and of Dr. John R. Hart, of Philadelphia, Pa., one of the most earnest and regular members in attendance, and Dr. C. F. Douglass, of Jamaica, one of the younger members, were announced, after which adjournment followed until 9 A.M. Wednesday.

The meeting was called to order on the second day at 9 A.M., with President Osgood in the Chair. After receiving the report of the Executive Committee, recommending favorably several applicants for membership, which recommendation was approved, the Chair announced as the Committee on Resolutions, Drs. Pearson, Hinkley, Salmon, Stalker. He also announced the following Committees on Resolutions relative to the deaths of the several members announced on Tuesday: Drs. Pearson and T. B. Rayner, on the death of Dr. J. R. Hart; Drs. R. R. Bell and Ackerman, on Dr. Charles F. Douglass; and Drs. James Law and James B. Rayner, on Dr. O. H. Flagg.

The President then announced that the next order of business would be the election of officers, and appointed as tellers, Drs. H. D. Gill and A. T. Peters. Nominations for President being in order, Dr. C. A. Cary presented the name of Dr. D. E. Salmon, and Dr. William Herbert Lowe named Dr. F. H. Osgood, whose nomination was seconded by Dr. H. D. Gill. Dr. W. L. Williams, in seconding the nomination of Dr. Salmon, advocated the election of the President, for but one term, referring to his own experience as President, of having failed in a reëlection and of receiving much adverse criticism, though he had endeavored to discharge the duties as thoroughly as possible. Dr. Hoskins then took the floor and referred with much pleasure to the names of the candidates and their assurance to fill the chief office well. He desired to state that the failure of the preceding speaker to receive a reëlection was not due to any lack of effort on his part to discharge the duties of President with zeal and ability so far as was within his power; that he had never heard of any adverse criticism of his administration, and that his reëlection failed simply because of peculiar circumstances that had arisen at that time which carried into office one of the officers of the Association who had served for several years in the office of Secretary. In advocating the reëlection of Dr. Osgood he referred to the admirable suggestions made in his opening address, that he felt would contribute very largely to the solution of several serious questions relative to the membership. These plans he would like to see carried into execution. The result of the ballot showed twenty-nine votes for Dr. Salmon and twenty-three for Dr. Osgood, after which the President expressed his good-will in the result of the election by saying: "There is no gentleman in the room whose election I had rather announce then our Chief of the Bureau of Animal Industry." Nominations for the three Vice-Presidents were quickly made: Drs. T. B. Rayner, Eastern Vice-President; W. C. Rayen, Central; and A. T. Peters, Western Vice-President. There being no other candidates named, the nominations prevailed, and the Secretary cast the ballot. The nomination for Treasurer being in order, the name of Dr. James L. Robertson came from a number of sources through the room, but Dr. Hoskins rising to the floor, called the members' attention to the repeated requests from Dr. Robertson in former years to be relieved of the duties of this office, which he had no desire to retain, and that, in view of his absence, it would be unfair to impose these duties upon him again; but if there was any one present who had any knowledge of his willingness to serve again, he would strongly favor his candidacy. On these grounds, the name of Dr. William Herbert Lowe was presented, and also the name of Dr. W. L. Williams by Dr. Tait Butler. Dr. Williams declined the nomination, and the nomination of Dr. Lowe was seconded by Dr. Leonard Pearson, and, there being no other names, the Secretary was instructed to cast the ballot. The nomination for Secretary being in order, by common consent from all sections of the room, the present incumbent, Dr. Stewart, was renominated, and the motion at once prevailed that he cast the ballot for his own reëlection.

The reading of papers then proceeded, as follows: Dr. Leonard Pearson presented the subject of "A Review of the Field of Veterinary Science." This paper exhibited an unusual amount of earnest thought, and was an exhaustive consideration of the future work of the profession, and was listened to with the greatest interest by the audience present.

This was followed by a paper on "Our Milk Supply," by Dr. Charles Ellis, of St. Louis, Mo. This paper was discussed at some length by Drs. O'Connell, Parker, and the essayist.

This paper was followed by Dr. W. H. Dalrymple, on "The Veterinary Field in the South." He referred to the work of education already done by the veterinarians, and of their importance and worth in conserving the health and wealth of the people in the South, and of how much good would be gained by a better knowledge of the treatment, of live stock, internal sanitation, and legislation that would better protect the people of the South. This paper was discussed by Dr. Butler, of Mississippi, who referred to the healthfulness of the climate of the South, the great need of efficient veterinarians, and the character of the Southern people of our country. Colonel Harding, a prominent stock-breeder of Tennessee, spoke of the opening in the South, of the meagre knowledge of the early veterinarians who came to that section, and that there was no section of our country where one would receive a better recognition in proportion to his knowledge and ability than in the South. Drs. Cotton, Heitzman, Jr., O'Connell, Cockerill, Wheeler, and Plunkett, ex-President of the State Board of Health, contributed to the discussion of the veterinary field in the South, all of which shed a light on the social status and the appreciation of the Southerners for talent and education.

Dr. C. A. Cary, of Alabama, then presented the subject of "Osteoporosis," illustrating his paper by the exhibition of many pathological specimens of diseased bones that he had secured bearing on this subject. This everyday topic and condition, so distressing at times to the routine veterinarian, brought a number of the members to the floor regarding their peculiar experiences with epizooty in some sections, the difficulties of diagnosis, interesting methods of treatment and the lack of knowledge of the true cause of the disease. It culminated in this subject being referred to the Committee on Diseases for the ensuing year, with instructions that they obtain data, statistics, and all information possible of this disease, for use in a thorough investigation of this subject. Among those who discussed this paper were Drs. A. H. Baker, Wheeler, Bell, Rectenwald, Hoskins, O'Connell, T. E. White, Gill, and General Cockerill.

To Belle Meade. The hour for adjournment having arrived, the Chair announced that the banquet had been fixed for Wednesday evening, and that the members would convene at the railroad depot at three o'clock to accept the courtesy of the railroad company and the Centennial Exposition officers in a trip to the famous Belle Meade Stock Farm. This proved one of the very pleasant features of the meeting. Over one hundred visited this famous farm, and there vied with one another in admiring the beauty and wonderful records of such famous horses as "Iroquois," "Luke Blackburn," "Inspector B," and the grave of "Inquirer," over which Mr. J. R. McLean, of Cincinnati, has erected a beautiful monument to his memory. The excellent and well-kept dairy was also visited, and the method of feeding and the preparation of ensilage was of much interest for all who participated in this outing. General Cockerill contributed much to the pleasure of this trip by the information he furnished of the breeding and records of the horses seen, while Major McCann seemed to be at all points, endeavoring to add to the pleasure of his large number of guests. Before returning to the train almost one hundred assembled on the porch of the famous old homestead, and were there photographed in group form. The ride back to the city was a pleasant one, and many were the kind compliments of appreciation exchanged over this added pleasure of our sojourn in Nashville.

The Banquet. At 9.30 o'clock Wednesday evening, around a beautifully decorated table at the Hotel Tulane, there sat down as congenial a body of veterinarians and invited guests to the number of sixty-five as had, perhaps, assembled in Nashville for many years. An excellent *menu* had been provided by the genial proprietor of the hotel, which the guests proceeded to enjoy, and the bounteous repast, from oysters to Maryland soft-shell crab, with Western grouse, frogs' legs, young chicken, and fresh shrimp, mingled with many other delicacies, was improved by a very liberal addition of sauterne, claret, and then capped with champagne. Reaching the latter, the toast-master, Dr. W. Horace Hoskins, rising at his place, introduced to the assembled guests Dr. Price, of the Medical Department of the Vanderbilt University, and asked him to respond to the toast of "How Well Our Sister Profession was Keeping Pace with its Advancing Brother, the Veterinary Profession." Dr. Price proved fully equal to the occasion, and thanking the guests for their very kind invitation, he spoke in very cordial terms and appreciation of the progress of veterinary science and of the close relationship which now existed, making the lines of distinction very narrow indeed between those who devoted their attention to human and comparative medicine. Dr. D. K. Smith was then asked to respond to the toast of "Veterinary Education," and his remarks were listened to with very great pleasure, and many were the warm expressions of delight at the privilege of hearing him and, in the absence of his father, Prof. A. Smith, of Toronto, of having one so well equipped to aid the progress of veterinary education in Canada. "The Responsibilities of a President, and the Many Duties it Carries with it," was most feelingly responded to at the call of the toast-master by President Osgood. "State Veterinary Associations" proved a well-selected topic for presentation by Dr. Nelson P. Hinkley, whose labors and efforts as an ardent association member are well known all over the land. Calling upon the President-elect, Dr. D. E. Salmon, on whose shoulders are to fall the mantle of responsibility for progress from a national point of view during the ensuing year, Dr. Salmon responded, touching upon the work with which he had been identified in other directions and closed with a feeling appreciation of the honor conferred upon him. "How to Obtain State Legislation," was the announced subject for response by Dr. A. H. Baker, who, after referring to the unsuccessful efforts in his own State, most severely criticised legislation that had already been obtained in some of the other States. "Journalism" proved an interesting topic, responded to by Dr. Tait S. Butler, whose experience in the Southern field in journalistic efforts was much appreciated, and his kindly references to the work done in this direction by veterinarians seemed to meet with general approval by all those around the festal board. "State Veterinary Sanitary Work" was the next subject announced, and State Veterinarian Dr. A. W. Clement, of Maryland, was called to respond. He dwelt much upon its great importance and of how much there was to be gained in the better control of all infectious and contagious diseases of animals through properly regulated boards and measures in this direction. The toast-master had reserved for the closing of this very happy occasion one with whom every member felt on the most kindly terms, and vied with one another in gaining his closer friendship, and, calling to the floor Major John J. McCann, for some twenty minutes mirth, gladness, and appreciation prevailed at the continuous flow of wit, satire, and poetry that poured forth with so much grace, ease, and pleasure, and with one accord a unanimous decision followed that the Exposition must have selected for the Chairman of its Entertainment Committee the best equipped Southerner for this place within their borders. A silent toast in memory of the departed members, whose loss of support and assistance the association keenly felt during the past year, was drunk in silence, after which the guests departed to their respective quarters, feeling that it was good to have been there and that this feature of our annual conventions should be strengthened in its influence and its creation of true fraternal feeling.

Our Last Day. A long session of the Executive Committee on the morning of the third day resulted in the convention convening at 11 o'clock. The report of the Executive Committee was received and its recommendations approved, after which the subject of "Texas Fever" was presented by Dr. J. M. Connoway, of Missouri. The interesting experiments and the results obtained were fully presented, the importance of this work to the South, to the live-stock industry, and to consumers of the meat-supply afforded by the South were thoroughly presented, and the methods by which it was hoped to control its dangers fully related by Dr. Connoway. The "tick-theory" was presented, and boxes of ticks and many other specimens were passed, after which the methods used to remove and destroy these parasites was referred to, after which the subject was freely discussed in its many important aspects by Drs. Parker, E. P. Niles, Francis, Roberts, Salmon, Law, and Wheeler.

The afternoon session was opened by the presentation of a paper on "Veterinary Education in Medical Colleges," by Dr. E. P. Niles, of Blacksburg, Va. He showed how little attention to the importance of comparative medicine had been exhibited by the colleges in the present century, and how great had been the line of work in this direction in the early history of medicine, and how needful it was if the best results were to be obtained in the sanitary field and in the domain of preventive medicine. The paper was discussed by Drs. Gill and Hinebauch.

"Millet Feeding and the Results Thereof" were presented in a contribution by Dr. Hinebauch, bearing upon the same lines as the subject of his paper at a prior meeting. He presented statistics of considerable importance.

"Inhalation-pneumonia," by Drs. W. L. Williams and P. A. Fish, of Ithaca, N. Y., proved an interesting paper, with some original work in the line of treatemnt, presented with a view of encouraging others to make similar experiments, with the hope that some better results might be obtained in dealing with certain forms and stages of pulmonary diseases. (This paper appears on page 619 of this issue.)

The subject of "Rabies" was then presented by Dr. A. W. Clement, of Maryland, in which he strongly combated the disposition to deny the existence of this disease, after which the paper was discussed by Drs. Salmon, Gill, Cotton, Ellis, Parker, Dalrymple, Hoskins, Plunkett, Meyer, Pearson, and Law. Many diverse views were presented by those participating in the discussion, and the best methods of controlling it and its dangers were fully dilated upon by all the members present.

The several committees on resolutions then presented their reports, as follows:

WHEREAS, it has pleased God Almighty to remove from our midst our fellow-member, Dr. Charles F. Douglass, of West Indies, it is hereby

Resolved, that in the death of Dr. Douglass this Association has lost a valued member and true friend of the veterinary profession, and be it also

Resolved, that in his death the veterinary profession loses a worker in a country where the veterinary profession can ill afford it;

And be it further resolved, that a copy of these resolutions be suitably engrossed, forwarded to his family and published in the veterinary journals of this country.

ROSCOE R. BELL.
E. B. ACKERMAN.

WHEREAS, it has pleased the Almighty to take from us our late fellow-member and associate, Dr. John R. Hart, of Philadelphia; and

WHEREAS, Dr. Hart was intensely interested in the progress of veterinary work and the best development of the profession of which he was an honored member, and his loss has made a most serious void in our ranks, be it

Resolved, that we hereby express our deep sorrow and regret and testify to the high character, personal integrity, and generous nature of the deceased, who was unremitting in his efforts to further the aims of this organization, and who cheerfully, with great energy and high ability, performed all duties assigned to him.

Be it further resolved, that we hereby tender our sympathy to the bereaved family; and be it further

Resolved, that a copy of these resolutions be spread on the minutes of this Association and one sent to the family of our later member.

THOS. B. RAYNER.
LEONARD PEARSON.

WHEREAS, in the providence of God there has been removed from our midst a valued charter member of the United States Veterinary Medical Association in the death of Dr. O. H. Flagg,

Resolved, that this meeting hereby expresses its sense of the great loss to the Association and to the community in which he lived, and of which he has long been an esteemed and respected member, and that we tender to his bereaved family the expression of our profound sympathy in their irreparable loss.

Resolved, that copies of this resolution be spread on the minutes of the Association and forwarded to his afflicted family. JAMES LAW.

JAMES B. RAYNER.

Regulation of the Tuberculin-test and Safeguards Needed.

WHEREAS, the tuberculin-test has been proven to be the only reliable ante-mortem means yet discovered of determining the existence of tuberculosis in its obscure forms; and

WHEREAS, the repetition of this test on the same subject tends to lessen the characteristic reaction, thus producing a non-responsive condition of the animal, which may be mistaken for soundness; and

WHEREAS, these facts may be and are taken advantage of by the irresponsible and unscrupulous to aid in the disposition of diseased animals,

Be it resolved, that the private employment of this test except as supervised by competent and responsible persons is fraught with danger to the public.

Necessity for Better Provisions in the Sale and Exchange of Cattle for Breeding Purposes.

WHEREAS, the sale of cattle for breeding purposes furnishes abundant and frequent opportunities for the dissemination of tuberculosis to uninfected herds,

Be it resolved, that all cattle sold for such purposes should, before going to their destination, have the tuberculin-test applied, and a certificate in accordance with the facts be furnished by the proper sanitary officer of the State.

Our Reception at Nashville.

WHEREAS, this the Thirty-fourth Annual Convention of the U.S.V.M.A., now closing its sessions in Nashville, has received every courtesy and assistance from the local Committee of Arrangements, the veterinarians of Tennessee, the citizens of Nashville, the Nashville and Chattanooga Railroad, and the authorities of the Tennessee Centennial Exposition, through their representative, Hon. John J. McCann; and

WHEREAS, this generous and hearty reception has greatly facilitated our work, and has made our visit enjoyable and profitable to an unexceptionable degree, be it

Resolved, that the thanks of this Association are hereby tendered the veterinarians of Tennessee and the South and to the citizens of this beautiful city for the hospitality we have enjoyed; to the press of Nashville for the full and accurate accounts of our proceedings, and to Hon. John J. McCann for his untiring efforts that have so largely contributed to our comfort and entertainment.

To Abolish Small Slaughter-houses and to Establish Central Abattoirs.

WHEREAS, the small slaughter-houses in the country districts, as well as in cities, are difficult of proper inspection and supervision, as they are so widely separated and are operated irregularly; and

WHEREAS, unscrupulous parties take advantage of this fact to have animals in a diseased and unsound condition slaughtered for food at such places, thereby menacing the public health; therefore

Be it resolved, that the U. S. Veterinary Medical Association recommends the prohibition of small and widely scattered abattoirs, and the establishment of central slaughter-houses with municipal ownership, if practicable, where constant and rigid supervision may be enforced.

Instruction for Committee on Diseases.

Be it resolved, that the Committee on Diseases is hereby instructed to devote special attention to the subject of osteoporosis and rabies; especially to the distribution, prevalence, and losses caused by these diseases, and to report upon the same to the next annual meeting.

As to the Milk-supply of Cities and Towns.

WHEREAS, the character of the milk-supply of a city is of the greatest importance to the health of the public, and a contaminated milk-supply is often followed by widespread suffering and numerous fatalities; and

WHEREAS, the wholesomeness of the milk-supply is of equal importance with that of the water-supply, for the improvement of which such intense efforts are frequently made; and

WHEREAS, milk is contaminated in a great variety of ways, some of them so obscure that they are frequently overlooked and require expert knowledge for their detection, and the usual city inspection, consisting merely in the detection of added water, is entirely insufficient for the proper protection of the public, and an inspection is required that includes the observation and correction of defects of all phases and stages of the operation of milk production and distribution, be it

Resolved, that a thorough veterinary system of dairy inspection is hereby recommended to all Boards of Health, with the belief that it will exert an important influence for the protection of public health, the preservation of infant life, and the betterment of the diet of the people through the increased consumption of safe and wholesome dairy products.

As to Rabies.

WHEREAS, rabies of dogs and other domestic animals prevails in certain sections of the United States; therefore

Resolved, that the sanitary authorities of the various localities should take some action looking to the control of dogs for the prevention of the disease.

The Merit System of Appointment.

WHEREAS, the growth and expansion of the civil service, or the merit system of appointment, has received our official approval from time to time; and

WHEREAS, its continuance has demonstrated the wisdom and value of this method of selection for the public service, and has secured the best corps of workers the public has ever had in its employ, be it

Resolved, that we most earnestly urge its continuance, its higher development and further extension, and that we pledge our united support to our National, State, and municipal officials who are charged with its execution and maintenance.

Papers on "Bacteriology," "Malignant Catarrh of the Ox," "Use of the Actual Cautery," "Radical Operation for Contracted Hoof," "Infectious Mammitis," "Some Diseases of the Horse Peculiar to Mountain Regions," were read by title and ordered placed in the hands of the Publication Committee.

The following places were then advocated for the meeting of '98: Boston, Omaha, St. Louis, and New York City. The outgoing President made a short speech, thanking the members and others for their attention and assistance to the Chair throughout the convention, and introduced in very kind words his successor, Dr. D. E. Salmon, who, in taking the Chair, feelingly acknowledged his appreciation of the very high honor conferred upon him, and asked for the same kindly support from the members that had been accorded his predecessor. The newly elected Vice-Presidents, Secretary, and Treasurer were introduced, after which the now famous meeting of '97 closed.

ASSOCIATION OF VETERINARY FACULTIES.

THE meeting was held on September 8, 1897, at 8 P.M., in Tulane Hotel, Nashville, Tenn., during the meeting period of the United States Veterinary Medical Association, Dr. Pearson in the chair. The following colleges were represented: Harvard University, Dr. F. H. Osgood; American Veterinary College, Dr. R. R. Bell; New York College of Veterinary Surgeons, Dr. H. D. Gill; University of Pennsylvania, Dr. Leonard Pearson; Columbian University, Dr. D. E. Salmon; Kansas City Veterinary College, Dr. S. Stewart; McKillip Veterinary College, Dr. F. S. Schoenleber; New York State Veterinary College, Dr. James Law; Iowa Agricultural College, Dr. M. Stalker; United States Veterinary College, Dr. C. B. Robinson; Ontario Veterinary College, Dr. D. K. Smith; Chicago Veterinary College, Dr. A. H. Baker.

Drs. Hoskins, McKillip, Clement, and Parker were also present, the last two being invited to be present as representing McGill University unofficially. On motion of Dr. Stewart, seconded by Dr. Baker, the minutes of the last meeting were approved as read.

The Executive Committee reported favorably on the application of Dr. R. R. Bell, American Veterinary College; Dr. Greiner, Indianapolis Veterinary College; Dr. Smith, Jr., Ontario Veterinary College; and Dr. F. S. Schoenleber, McKillip Veterinary College. Drs. Clement and Parker, not being eligible to represent McGill University (not of the Faculty or teaching staff), were reported unfavorably. On motion of Dr. Baker, seconded by Dr. Stewart, that those representing other schools, but not eligible to vote, be invited to attend the meeting during the reading of papers and the discussion of the same; carried.

Dr. Salmon, of the Committee on Uniform Standard of Entrance Examination (Drs. D. E. Salmon and James Law), stated that he had no report on the subject, but that Dr. Law had. Dr. Law read his report, and it was discussed at length by every member present, and the discussion waxed so warm that Dr. Law protested to the very pointed and personal remarks of Dr. Robinson, who was repeatedly called to order. When asked if the report of Dr. Law expressed the ideas of the whole committee, Dr. Salmon answered the chair that it did not, and that he would present one at the next meeting. On motion Dr. Law's report was accepted, after it had been explained that acceptance does not imply an indorsement of the views expressed. On motion, further discussion was postponed till after the reading of Dr. Hoskins' paper on "Uniformity of State Regulations Governing the Practice of Veterinary Medicine." Both papers were freely discussed. The prevailing opinion seemed to be for uniform entrance examination. On motion Dr. Hoskins' paper was accepted. On motion of Dr. Osgood, seconded by Dr. Schoenleber, that a committee of five, as follows, Drs. Osgood, Law, Salmon, Schoenleber, and Bell, be appointed to report at the next meeting on the advisability of forming a "National Examining Board," was amended by Dr. Salmon, seconded by Dr. Bell, that a provision should be made for a coöperation with State associations to secure a uniform provision in legislation authorizing the examining board to establish the standard of examination, and to accept the certificate of other boards that have satisfactory requirements. Motion as amended was carried.

The following amendment to Articles I. and II. of the Constitution was proposed by Dr. Pearson: *Resolved,* That Article I be so amended as to read that this body shall be known as "The Association of Veterinary Faculties and Examining Boards of North America;" that Article II. be so amended as to read, "This Association shall consist of members of governing faculties and teaching-staffs of all veterinary schools of North America which confer a degree in veterinary science, and of members of State veterinary examining boards that grant licenses to practice; but each college and board shall have but one vote in the meeting, and that vote shall be cast by the properly appointed delegate of the school or board." The President ordered it to take the regular course.

The election of officers being in order, on motion of Dr. Robinson, seconded by Dr. Osgood, the present incumbents were declared re-elected, and the Secretary cast the ballot as follows: Dr. Pearson, President; Dr. Gill, Secretary-treasurer; Drs. Law, Stalker, McEachran, Salmon, Robertson, Executive Committee.

On motion of Dr. Osgood, seconded by Dr. Robinson, that minutes of the meeting and papers be published in the report of the United States Veterinary Medical Association; carried.

Meeting adjourned.

H. D. GILL,
Secretary-Treasurer.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

THE semi-annual session was convened in Franklin, Venango County, on Tuesday, September 21, 1897. The commodious and attractive apartments situated over 1249-1251 Liberty Street, and known as the A. O. U. W. Hall, had been selected by the local reception committee. Here was held one of the most interesting and successful meetings experienced by the Association in the history of its autumnal sessions. An incident occurred in the early morning that proved a delightful experience to the attending members. The Association received an invitation to visit the Prospect Hill Stock Farm of Messrs. Miller & Sibley. Mr. E. H. Sibley gave inspiration to his invitation by sending two elegant four-in-hands to convey the guests from the Exchange Hotel to the farm. To those who were strangers in this unique and prosperous niche in the great oil regions a tally-ho drive through a section whose hillsides are dotted with scores of derricks over oil wells was a novel experience. The enjoyment to all was as keen as the morning was beautiful and the scenery picturesque and inspiring. The inspection of the trotting stock and stud, also the magnificent herd of high-class Jersey cattle, greatly interested the veterinarians, who are lovers of quality in stock and who appreciate the beauty and value of hygienic surroundings. Much praise and satisfaction were expressed with what was seen, and many thanks were tendered Mr. Sibley for his attentive courtesy extended the visiting members through Mr. Gray, his representative.

Returning from the farm, the Association was called to order at 11.30 A.M. by the President, James B. Rayner. On motion, the roll-call was dispensed with, and the Recording Secretary at once proceeded to read the minutes of the previous meeting, which were approved as corrected.

The President then delivered his address. He thanked the Association for the honor conferred by electing him as its presiding officer for the ensuing year. He spoke with enthusiasm upon the value to the profession of veterinary associations. He showed them to be powerful educators and the means of stimulating the best elements in and elevating the character of the profession. He spoke of the value of fraternal relationship, the additional strength given the State and national associations by the local ones. He said that a closer affiliation of associations is necessary to give the best support to the important questions upon which we deliberate and aim to influence legislation. Advancement is the result of personal interest, no less in the history of veterinary professional work than along other lines, and that if each member would contribute papers, reports, and personally work for the interest of the Association, the latter is sure to be successful. The President pointed with pride to the position of the veterinary student of to-day contrasted with said position thirty years ago. He had witnessed with delight the astonishing progress in the growth of the profession and in the opportunities afforded by colleges for securing a veterinary education. He said: "You are so much better prepared, so much better provided for than we who have preceded you, that we can pass from the duties that have been ours with strong faith that you will carry on the good work. As one with long experience, I can say that though the duties are hard at times, they are pleasant. They are worthy of your best efforts. With an honest purpose to do right, and earnest labor for those who place their confidence in you, you will be successful and will shed honor on your chosen profession."

At the close of his address the President introduced the Mayor of Franklin, George B. Jobson, V.S., who, in a happy strain, spoke cordial words of welcome. The Mayor dwelt upon the progress and status of our profession; of its age in the world; its prestige; the immense value the study of comparative medicine had been to the progress of human medicine on essential problems; its conspicuous place as the guardian of the health of the people in being able to provide a healthful meat- and milk-supply as well as to protect the community from the ravages of certain contagious diseases. He complimented the Association on its good work; on the creation of the State Veterinary Examiners' Board to influence higher education and take the profession out of the hands of empirics; on the State Live-stock Sanitary Board to promote the health of the people of this great Commonwealth and to conserve the moneyed interest in live-stock in our State. The Mayor by his hearty greetings made each member feel that he was at home in Franklin.

Following the Mayor's address, Dr. W. Horace Hoskins made fitting remarks upon the character and usefulness of our late member, Dr. John R. Hart, and recommended that a committee be appointed to draft resolutions of respect and condolence. The chairman then appointed Drs. Hoskins, Pearson, and T. B. Rayner to constitute said committee.

Election of officers being next in order, Dr. Hoskins presented the name of Dr. Francis Bridge for Treasurer, to fill the vacancy caused by the death of Dr. Hart. On motion Dr. Bridge was unanimously elected.

The following names were proposed for membership in the Association: Henry Bowers, V.M.D., Philadelphia; Samuel J. Swift, D.V.S., Franklin, Pa.; W. E. McCray, V.S., Oil City; Harry Emery, D.V.S., Pittsburg; David Waugh, D.V.S., Pittsburg; E. C. Porter, V.S., Newcastle; E. E. Bittles, V.S., Newcastle; M. J. Chrisman, V.S., Sugar Grove; A. W. Weir, V.S., Greenville.

To fill vacancies on the Board of Trustees the chairman appointed Drs. Hoffman, Michener, Rectenwald, and James A. Waugh. Following a short intermission the chairman of said board reported favorably upon all the applications for membership. The board in its report considered the relation to this Association of members who move to other States to practise their profession. While the board holds that such members may retain their membership in this Association, if they so desire, it urgently recommends them to ally themselves with the interests of the Association of the State in which they practise. The above recommendation was adopted.

The following resolutions were prepared and adopted by the Association:

Whereas, Of the last three meetings of the U. S. V. M. A. two have been held in the West—*i. e.*, in Des Moines and Nashville—and the third at Buffalo, three hundred and fifty miles from the seaboard; and

Whereas, The veterinary profession in the East has been somewhat neglected, and has suffered from such oversight, and needs the stimulation and cohesive influence of a meeting of the National Association; be it

Resolved, That the Pennsylvania State Veterinary Medical Association earnestly petitions the President and officers and other members of the Executive Committee of the U. S. V. M. A. to favor the holding of the next meeting at Boston, and expresses the belief that it would be a serious error to hold three or four meetings a long distance from the centre of membership of the Association, and especially to select a meeting-place in a territory that has been occupied within three years.

Following the discussion and adoption of this report, the Board of Trustees having nothing further, on motion, the Association instructed the Secretary to cast a ballot for the new members, who were then introduced by Dr. Jobson.

Corresponding Secretary's Report.—In his written report, after showing his expense account, the Secretary dwelt upon his correspondence, not only with each member of the Association, but with every honorable veterinarian in this State and the adjoining counties in New York and Ohio. The number of replies and inquiries from them serves to indicate the interest awakened by association work among new members and its wholesome influence upon the great body of professional men in veterinary medicine. A number of complaints of illegal practice carried on in numerous ways and by various ruses have been reported. These have been turned over to the State Board of Examiners, under whose jurisdiction such matters come.

On motion, made by Dr. Rhoads and carried, a committee of two was appointed to examine and assist in settling the Association accounts of the late Treasurer before said accounts pass into the hands of the newly-elected officer. The President appointed Drs. Hoskins and Pearson to constitute said committee.

Under the head of new business, Dr. Noack asked why the State Association of Pennsylvania and the National Association convened in the same month. He pointed out the inconvenience, the impossibility in some cases, of attending both meetings, and suggested that a difference of several months be made between them. This opened a lively discussion. It was shown that the time of the semi-annual meeting of the State Association had been changed from the Tuesday after the first Monday in September to the third Tuesday in the month, to overcome this embarrassment; that the date of the National Association was one most favorable to its members, many of whom could not otherwise attend; that September was a favorable and pleasant month to hold conventions; that we have no jurisdiction over the National Association, and that an idea contemplating the radical change of the time of the meetings of this Association would be more practical before the annual spring session at Philadelphia.

Report of the Committee on Legislation.—Dr. Leonard Pearson, as chairman of the Committee on Legislation, in a verbal report, in effect said: "One difficulty encountered by the State Live-stock Sanitary Board in its efforts to deal with the suppression and prevention of tuberculosis in the past year was how to prevent the disease from being reintroduced on premises by cattle brought from other States or counties for dairy or breeding purposes. In other words, how were we to protect our cattle interests against a supply being brought from an infected source? It had been suggested that legislation be secured to control the admission of cattle into the State, admitting only such as could be shown to be free from tuberculosis. Such a law had since been enacted. It provides that cattle coming into the State to be used for dairy and breeding purposes must undergo the tuberculin-test before admission. The test may be made at the most convenient stock-yards on the line of railroad over which the cattle are shipped or in quarantine. The law takes effect January 1, 1898. Said law is enforced by the Live-stock Sanitary Board, and a fine of fifty dollars is imposed for its infringement. In flagrant cases of its violation the punishment may extend to imprisonment; but the details of the method of enforcing the law and of inspection and reporting violation, etc., had not been fully developed, but would be brought to completion in the near future. Dr. Pearson declared that this law was a necessity. It was not a new idea, for other States had adopted similar measures and required the tuberculin-test. Of the New England States this is especially true, and Pennsylvania would not be made a dumping-ground for diseased animals that could not be disposed of in other Commonwealths.

Another measure has been passed appropriating $15,000 to be expended in the investigation of infectious and contagious diseases. The value of the live-stock interest of Pennsylvania aggregates approximately $125,000,000. The loss sustained through contagious diseases is enormous, and is expressed in millions. The object of this measure is to lessen these great losses by prevention of the plagues that produce them; but the particular purpose is to prevent tuberculosis. It would seem a prodigious task to apply the tuberculin-test to all the cattle in this State. It would be impossible from the standpoint of cost. To prevent the malady would appear to be the most practical method. But how? We believe that in a more perfect knowledge will be found the means we desire. We propose to study these great problems experimentally, and to determine under what causes and conditions infectious and contagious diseases are spread. Thus we hope to arrive at more positive knowledge, more definite conclusions than we now possess. We will study the progress of tuberculosis under both sanitary and unsanitary conditions. The elements of light, darkness, moisture, and temperature will be observed in their effects upon animals in health and disease and their relation to the propagation and spread of the same. With proper facilities we may study the disease under a variety of conditions at one and at the same time. The amount set apart for such study is scarcely adequate, but it marks a beginning. This movement we now make is an innovation. In Nebraska there is a similar one, but this is among the first of its kind in this country. Views concerning the phenomena of causes, progress, and spread of contagious and infectious diseases are numerous; but they all lack accurate, scientific proof; hence the necessity for such data. Other diseases may be studied at the same time, viz., osteoporosis, about which there are so many theories, yet little positive knowledge; also the so-called cerebro-spinal meningitis, contagious abortion, anthrax, and hog-cholera. It is largely due to your influence—to the influence of this Association—that the step is taken. It is not more than fair that you should have a voice in this matter and suggest the means that may solve this problem before us. I invite discussion, and hope you will be free to make suggestions, and thus help forward the work you have begun.

At this time a motion to adjourn was made and carried. A bounteous repast had been prepared in the room adjoining the hall. The veterinarian does not take a back seat, if judged by the old saying, "A man who cannot eat cannot work."

The afternoon session was called to order at 2.20 oclock. The roll-call showed the following members present: Drs. Hoskins, Hoffman, Helmer, Irons, George B. Jobson, George Jobson, McNeil, Michener, Noack, Pearson, Thomas B. Rayner, James B. Rayner, Rectenwald, Rhoads, Waugh, and McLean. New members present were Drs. Bittles, Christman, Emery, McCray, Swift, and Wier. The visitors were W. A. Meredith, V.S., and James McMahan. The Corresponding Secretary read letters from several absent members.

Reports of County Secretaries.—Representing Venango County, Dr. George Jobson rendered the following report: With the exception of a number of cases of strangles and influenza of a mild type, no diseases of a contagious nature have been reported in Venango County during the past six months.

Montgomery County, by Dr. N. E. Reinhart, of Pottstown, Pa.: His report shows one case of glanders. The animal was destroyed and the premises thoroughly disinfected. The trough, rack, stall, blankets, buckets, in fact, everything used about the animal, were burned and the walls twice whitewashed. The doctor has inspected ten herds of cattle since June, and found tuberculosis in each herd. From one to four head in each herd inspected were condemned and destroyed. Dr. Reinhart holds that there are other herds diseased, of which we are ignorant because the owners do not report them. Until we are empowered by law to examine for ourselves, and until cattle are tested with tuberculin when brought into the State, we may expect to have tuberculosis with us. The doctor also reports two cases of spinal meningitis in one stable. Both died within one week from the time of the attack. Other horses were removed to a shed a short distance from the barn. There were no more cases.

Report of the Commiteee on Sanitary Science and Police.—Dr. J. Curtis Michener (chairman) made the following report: There are several plans of control work concerning tuberculosis that have been tried in several States:

1. Inspection of all cattle in the State, as in Massachusetts. This is being abandoned on account of its unpopularity with the farmers and dairymen.
2. Inspection here and there as the disease is reported to exist. This is without method and of very limited good.
3. Under direction of State Boards of Health, as in New York State. It is a health measure concerning people and unpopular with farmers.
4. Under direction of State Live-stock Sanitary Boards, as in Pennsylvania.

The State Live-stock Sanitary Board of Pennsylvania consists of four members—Governor, Secretary of Agriculture, Dairy and Food Commissioner, and State Veterinarian—all State employés, but receive no extra pay for serving on the Sanitary Board. The method of work is as follows:

1. Application for inspection, which is a contract, binding the cattle-owner to coöperate in getting rid of the disease and the disinfection of premises.
2. Inspection done at the expense of the State.
3. Cattle appraised and killed.
4. Premises disinfected.

All those whose property is becoming consumed by tuberculosis can avail themselves of these provisions, and get rid of the disease and receive fair remuneration for cattle found diseased and destroyed; therefore, the work receives the active coöperation of the farmers, and results in much permanent good to the State. Disease is being suppressed—in some places rapidly, in others slowly, and without interference with the live-stock and dairy interests. Increased confidence is given consumers of dairy products as well as meats. The public is being educated in the means to be used to prevent the spread of the disease.

Up to the end of the last fiscal year, June 1, 1897, the expenditures for cattle amounted to $43,476.50. Amount paid for inspections, $8291.99. Inspections cost less than 17 per cent. Cattle-owners receive 83 cents on every dollar expended for tests and for cattle killed.

More than 10,000 head have been tested with tuberculin. Less than 20 per cent. of these were found tuberculous. These are herds that were thought infected before being tested. Many of the principal breeding herds have been put on a sanitary basis.

Everything seems to be working satisfactorily, and there seems to be no reason for a change of method. The work is enforced with judgment and conservatism, and promises to free the herds from this destructive disease without creating alarm. Portions of the State that less than one year ago were in bitter hostility, and petitioned the Sanitary Board to stop what they called the wholesale slaughter of herds on the strength of the tuberculin-test, are now perfectly reconciled and are coöperating with the authorities in a good and sure work.

Regard for propriety would require that our report end here, as our knowledge of the occurrences and discoveries in the field of sanitary science and police since our last meeting is limited to these facts, for which we are indebted to our State Veterinarian; but, with your indulgence, we will give ourselves free scope, and glance over the past, present, prospective future. In looking back to student-days of thirty-three years ago, it seems almost incredible that there should be such a wide difference in the actual and sanitary knowledge of the medical world, especially in the veterinary practice of this country. True, in those days Massachusetts had already adopted measures for stamping out contagious pleuro-pneumonia among cattle, and was followed up by other States, and finally brought to a successful termination by the coöperation of our National Government. Glanders was combated and somewhat restrained by a common instinct for the public safety by common law and the aid of a few qualified practitioners. The germ-theory of disease was being accepted by the medical mind, but it has been within a few years that the successful laboratory work has been done and the course determined by which we shall conquer disease and stay pestilence. The progress made in twenty-five years is, indeed, most gratifying and encouraging. It is our privilege, at this time, to point out ways in which we, as practitioners, may aid the good work. Our State, with many others and the National Government, is now in a position to guard our immense live-stock interests and promote sanitary science. Among the chief aids required at this time is more money at the disposal of our Bureau of Animal Industry, the State Live-stock Sanitary Board, and boards of health. We trust that returning prosperity, a better public conception of the needs, and a better realization of the truthfulness of the old saying, "an ounce of prevention is better than a pound of cure," will meet this paramount requirement when the funds are wisely and economically expended. The next important need is more interest and better coöperation on the part of practitioners. They form the chief and most reliable source of information to the State veterinarian and Live-stock Sanitary Board, and are its trusted agents in carrying on the work. We should be well informed. I find it to be an actual fact that we have practitioners who do not know of our State provisions for suppressing outbreaks of contagious diseases and the investigation of causes. We should be in close touch and sympathy with the authorities in their efforts to protect the stockman's interests and the public safety. Our veterinary colleges are furnishing a constantly increasing need in the form of qualified veterinarians to act upon boards of health and as inspectors of live stock and their products, and as public educators and authorities upon which the people can rely. A great work is yet before us until we have the State

Live-stock Sanitary Board so well aided throughout the entire State as to enable it to completely fulfil its mission. In our opinion, it could profitably take cognizance of the most common contagious and infectious diseases, such as strangles and influenza in horses. These diseases inflict an unnecessary amount of loss and inconvenience, due to the ignorant and careless manner in which diseased horses are allowed to mingle with sound ones, and the neglect of disinfection. These diseases are frequent and widely distributed in our part of the country. For instance, a drove of horses is shipped from one distant point to be sold at public sale. The cars they are brought upon and the yards and stables they pass through are ofttimes hot-beds of infection, and when sold they are ready to develop the disease. They are spread broadcast, and each stable in which they go becomes another centre of infection. It need not nor should not be, if proper supervision and restrictions were placed upon the horse-market. The world is starting upon an era of warfare upon disease-germs in animal and vegetable life, and upon injurious insects and noxious weeds, that will some day make this a better sphere to live upon. In this grand battle the veterinarian will stand among the foremost.

The literary programme was now opened with a talk by Dr. George B. Jobson on "Bacteria." Dr. J. B. Irons presented the subject of "Anthrax." Dr. Willis B. McCray, "Parturient Apoplexy;" Dr. W. Horace Hoskins, "Why We Come to Franklin;" Dr. C. C. McLean, "Dairy and Milk Inspection;" Dr. Otto G. Noack, "Report of Surgical Cases, as Tenotomy and Resection of Necrotic Parts of Soft Tissue of Frog Caused by Nail Wounds;" Dr. E. Mayhew Michener, "Record of a Few Cases of Abdominal Surgery." These interesting and valuable papers will all be published in the JOURNAL as soon as room can be found for them. The paper by Dr. C. C. McLean on "Dairy and Milk Inspection" was an exhaustive treatment of the subject. The doctor's experiments before the Association, showing how to detect foreign substances and adulterations in milk, were very interesting and instructive. Dr. Hoskins proposed that this paper be given to the JOURNAL, and that three hundred copies be printed to be distributed among the members of the Association. On motion of Dr. Pearson, Dr. Hoskins' proposal was accepted. On motion of Dr. Waugh, the paper is also to be published in the *Review*.

Reports of Cases.—Dr. J. C. Michener read a report entitled "Four Interesting Cases at Cloverdale Farm." This will be published. Dr. McLean reported a rare case. He was called to attend a collie bitch that gave birth to nineteen puppies. The family seemed healthy. Dr. Rectenwald and others reported cases.

The following resolution was presented and unanimously adopted:

Whereas, this meeting of the State Veterinary Medical Association has been one of the most enjoyable and successful that has ever been held by this organization; and

Whereas, this gratifying condition is due to the energy and courtesy of our fellow-members, the Mayor of Franklin and his associates on the Committee of Arrangements, to the entertainment and instruction afforded by Messrs. Miller & Sibley, to the efforts of those who prepared papers for this occasion, and to the local and county press; be it

Resolved, that the thanks of this Association are hereby extended to all of those who have contributed so materially to the success of this meeting, and we hereby express our deep appreciation of the same.

This resolution was also offered:

Whereas, we have learned through the State Veterinarian of certain contemplated plans for the better solution of many of the very important problems yet to be solved in relation to the propagation, means of extension, and methods of control of certain infectious and contagious diseases of live stock, especially tuberculosis; and

Whereas, these are of the greatest importance to the welfare and health of the public and to the vested interests of a large portion of our people; therefore, be it

Resolved, that we most heartily indorse these proposed plans of investigation, and earnestly recommend their early application, that the results to be obtained may be promptly realized.

W. HORACE HOSKINS,
J. CURTIS MICHENER.

Following these resolutions Dr. Hoskins read the by-laws as revised. The articles were read and voted upon separately, and then the whole was adopted as revised.

By consent of the Association a paper was read by Dr. W. A. Meredith, of Corry, Pa., on "Cerebro-spinal Meningitis." Owing to the lateness of the hour (7 P.M.) this paper was not discussed, but a motion to adjourn was made and carried.

Most of the members were obliged to remain in Franklin over night and take early morning trains to their respective homes. Each took with him pleasant memories of Franklin, of fraternal greetings and pleasure in another experience of the days of "Auld Lang Syne."

JACOB HELMER, D.V.S.,
Secretary.

ECHOES OF THE MEETING AT FRANKLIN.

The Keystone State Association eclipsed all records of former semi-annual meetings in adding to its membership and the scope of the programme at Franklin.

It was an outpouring of the profession from the northwestern tier of counties of Pennsylvania, and more than verified the most sanguine hopes of those who advocated Franklin for our semi-annual gathering.

President Rayner found it necessary to keep things moving along at a fast pace in order to get through with an overloaded programme.

Mayor Jobson exhibited excellent qualifications as a presiding officer, and seems to fill well every duty placed upon him, whether those of a veterinarian, mayor, or as presiding officer of an assembly.

It was Dr. J. Curtis Michener's first visit to Western Pennsylvania, and every hour of the trip was one of enjoyment.

President Rayner's looks like a record-breaking administration for new members.

Secretary Rhoads lost no opportunity of impressing on all visiting veterinarians the value of association privileges, and won many new members.

Philadelphians found the trip *via* Pittsburg and returning *via* Corry the longest railroad ride in the State, but they all returned home feeling well repaid in the good work accomplished.

Recording Secretary Helmer wonders if such an avalanche of work for his office is to continue. It was rather a serious matter in a new office to keep pace with the proceedings.

PENNSYLVANIA STATE ASSOCIATION OF MASTER HORSESHOERS.

THE third annual convention was opened at Harrisburg on September 6th, at 10 o'clock, in the hall of the Board of Trade. Dr. James T. McAnulty, of Philadelphia, President, Organizer, and Statistician, presided over the deliberations of the body and introduced City Solicitor Seitz, who delivered an eloquent address of welcome in behalf of Mayor Patterson, who was absent from the city.

President McAnulty made a graceful response to Mr. Seitz's fervent words of greeting. The President also read his annual address to the convention, in which he advocated a closer connection between the local organization and those of the State and nation.

Secretary-Treasurer John C. Smiley, of Philadelphia, read an interesting report, tracing the growth of the Association since its inception, three years ago, and giving a clear exposition of its financial and numerical condition to-day.

The afternoon session was well attended, as all of the forty delegates who enrolled themselves in the morning were present, and in addition a number of outsiders who are interested in the care and protection of the horse. At a late hour in the afternoon officers were elected and the place of next year's convention selected.

In the evening an open meeting was held at the Board of Trade rooms, when Dr. Adams, the well-known Philadelphia veterinarian, delivered a lecture on "The Anatomy of the Horse and the Levelling of the Hoof." Other addresses were made informally by members of the convention.

The old officers have been re-elected with the exception of the first and second vice-presidents, A. J. Shnell, of Scranton, being elected first vice-president, and A. Schappel, of Bethelehem, second vice-president.

VETERINARY MEDICAL ASSOCIATION OF THE DISTRICT OF COLUMBIA.

THE September meeting was held in Elks' Hall, 1006 E Street, N. W., on Saturday, the 25th, at 8 P.M., with the Vice-president, Dr. Buckingham, in the chair. Minutes of previous meeting approved.

A letter was presented from the Commissioners of the District, in which they stated that the application of this Society relative to the muzzling of dogs running at large during the summer months had been referred to the Attorney for the District, who gave his opinion that it was illegal to issue such an order. The Association directed the Secretary to call the attention of the commissioners to the police regulations which directly applied to the muzzling of dogs.

The Legislative Committee reported that at the next meeting it would propose a new paragraph for the bill which is to be introduced during the next session of Congress, regulating the practice of veterinary medicine and surgery in the District. This paragraph will be of a reciprocative nature, and will provide that such States as will in the future recognize the certificates granted by the Board of Veterinary Examiners, to be created by Congress in said bill, as entitling holders of said certificates to practise in their respective State without undergoing another examination by the State Board of Veterinary Examiners of said State, will be treated in a similar manner by the authorities of the District of Columbia, and veterinarians of such States will be privileged to practise in the District of Columbia, provided they have a certificate from a State Board of Veterinary Examiners.

Dr. C. B. Robinson moved that this Association extend invitation to the U. S. V. M. A. to hold its next meeting in this city; approved unanimously with cheers. Letters of regret were received from several members, among which was one from Dr. D. E. Salmon, recently elected a member of this Association, but promising to be more punctual in the future.

The regular subject of this meeting, which was the discussion of tuberculosis and its relations to the health and welfare of the District, was brought forward by Dr. C. B. Robinson presenting the following resolutions, which were unanimously adopted after a long discussion, and the Secretary was directed to forward them, along with a letter, to the Commissioners of the District:

Whereas, tuberculosis exists to a large extent among the cattle of the District of Columbia, Maryland and Virginia, all of which sections supply meat and milk to the city of Washington, D. C.;

Whereas, good beef, free of disease, is plentiful and comparatively cheap in this country;

Whereas, the slaughter for meat of cows which have been condemned for dairy purposes on account of tuberculosis and other diseases is constantly occurring in the abattoirs of the District and surrounding country; therefore, be it

Resolved, that it is the sense of this Association that such meat is extremely dangerous for human consumption, and that no cows which have been used in dairies should be allowed to be slaughtered for food except under the inspection of a veterinary surgeon in the employ of the District of Columbia, and that a copy of these resolutions be forwarded to the Commissioners of the District of Columbia.

J. P. TURNER,
Secretary.

U. S. EXPERIMENT STATION VETERINARIANS.

The United States Experiment Station Veterinary Medical Association met at Nashville, Tenn., Tuesday evening, September 7th, and organized by electing the following officers: Dr. C. A. Cary, President, and Dr. A. T. Peters, Secretary. Dr. James Law, of New York; Dr. S. B. Nelson, of Washington, and Dr. J. W. Connoway, of Missouri, were appointed as an Executive Committee, of which the officers of the Association are ex-officio members.

The objects of the Association are to enable experiment station men to get together in their States and make experiments. A constitution and by-laws were adopted, and, under a suggestion of the Executive Committee of the United States Veterinary Medical Association, it was ordered that the proceedings of this Association be printed with the proceedings of the United States Veterinary Medical Association.

UNITED STATES VETERINARY MEDICAL ASSOCIATION.

LIST OF OFFICERS AND COMMITTEE APPOINTMENTS FOR 1897–98.

LIST OF OFFICERS. D. E. Salmon, President; T. B. Rayner, W. C. Royen, and A. T. Peters, Vice-Presidents; S. Stewart, Secretary; William Herbert Lowe, Treasurer.

LIST OF COMMITTEES. *Executive.* T. S. Butler (Chairman), F. H. Osgood, W. Horace Hoskins, W. L. Williams, T. J. Turner, M. Stalker, M. H. Reynolds.

Publication. W. L. Williams (Chairman), N. P. Hinkley, R. R. Bell, W. B. Niles, S. Stewart.

Finance. M. Stalker (Chairman), M. H. McKillip, S. Stewart.

Intelligence and Education. Leonard Pearson (Chairman), W. B. Niles, John M. Parker, Olof Schwartzkopf, R. R. Dinwiddie.

Diseases. A. T. Peters (Chairman), E. P. Niles, W. H. Dalrymple, Joseph Hughes, J. F. Winchester.

Resolutions. A. W. Clement (Chairman), Leonard Pearson, C. A. Cary, A. T. Peters, S. Stewart.

PERSONALS.

Dr. J. B. Hopper, recently in charge of the quarantine station at Garfield, N. J., has been transferred to the meat-inspection department of New York City. He is succeeded at Garfield by Dr. W. B. E. Miller, who was transferred from the New York department.

Dr. Charles W. Heitzman, of New Orleans, holds the post of chief of the meat-inspection service of Louisiana under the State Board of Health.

Dr. F. S. Schoenleber holds the position of dean of the McKillip Veterinary College. He is much interested in the work of the Association of Veterinary Faculties.

Dr. T. D. Hinebauch, of North Dakota, has been succeeded as instructor in the agricultural college and State Veterinarian by Dr. W. G. Langdon, of the same State.

Prof. Thomas Bowhill, of Edinburgh, Scotland, has been appointed chief government veterinary expert in Zululand, and will at once enter upon a thorough investigation of the present outbreak of rinderpest among the cattle of South Africa.

The enjoyment of the visit to Nashville was not wholly confined to the veterinary profession. Among the visitors was Mr. Frederick Krey, representing the firm of John Reynders & Co., of New York City, with an excellent display of veterinary instruments, which attracted a great deal of attention, and a very keen interest was espeically shown in the exhibition of a thermo-cautery and dental instrument destined to obviate many of the objections raised against instruments brought out to be used in similar work.

Dr. Robert C. Cliff, formerly of Hamilton, Canada, has located at Cavalier, North Dakota.

Dr. Leonard Pearson, of Philadelphia, in conjunction with his visit to Nashville, spent three days at Mammoth Cave, Kentucky.

Drs. J. F. Winchester, of Lawrence, and J. M. Parker, of Haverhill, Mass., included a visit to Mammoth Cave, Ky., while attending the thirty-fourth annual convention of the U. S. V. M. A.

Dr. E. B. Ackerman, of Brooklyn, has been selected as a veterinarian to the Humane Society of the City of Churches.

Drs. William Sheppard, of Sheepshead Bay, Long Island; Edward Loomes, and Thomas G. Sherwood, of New York City, have been selected as veterinarians to the thirteenth annual exhibition of the National Horse-show Association in Madison Square Garden, November 15 to 20, 1897.

Dr. E. L. Loblein, of New Brunswick, is one of the directors of the new Driving Park Association at New Brunswick, N. J.

Prof. Andrew Smith, of Toronto, Canada, was prevented from attending the convention at Nashville on account of the Industrial Exposition coming the same week. He is vice-president of the latter organization, and is general director of the live-stock exhibit.

Dr. Charles R. Wood, of Lowell, Mass., was one of the timers at the first performance in which the two-minute pace was lowered.

Veterinarian G. Howard Davison, of Millbrook, N. Y., was the winner of many prizes with his sheep shown at the New York State Fair.

Dr. F. S. Allen, of Philadelphia, was a visitor to Nashua, N. H., in the latter part of September.

Dr. W. R. Jobson, of Oil City, Pa., made a trip to Scotland in August last.

Dr. W. S. Kooker, of Philadelphia, met with a painful accident from falling, resulting in a severe scalp wound.

"Canadian Cattle and Their Inspection," by Dr. P. H. Bryce, is the title of an interesting article in the fifteenth annual report of the Provincial Board of Health of Ontario.

We are indebted to Dr. W. B. Niles for a copy of *Bulletin No.* 35 of the Iowa Agricultural College Experiment Station, in which we note several interesting articles on the feeding of lambs and calves, and an interesting review of the diseases of sheep in Iowa. An article on "Hog-cholera and Swine-plague," by Dr. W. B. Niles, adds much of interest from a review standpoint of the work done in this field. The book is profusely illustrated, and adds much of value to the contents and clearness of the text.

The many friends of Dr. H. D. Hanson will be glad to learn of his improved health and return to practise in New York City after a three-months' sojourn in the mountain regions of Sullivan County.

Dr. W. C. Carter, Professor of Physiology in the Veterinary Department of the University of Pennsylvania, has accepted the chair of physiology in the University of Texas.

The many warm friends of Dr. Isaiah Michener, of Carversville, Pa., will rejoice in knowing of his rapidly improving health from a recent light stroke of paralysis.

Dr. C. C. McLean, of Meadville, has made an enviable record for himself in directing and gaining for his city an excellent system of milk and dairy inspection.

The courtesy of Mr. Gray, representing Miller & Sibley, of the Prospect Hill Stock Farm, at Franklin, Pa., in extending so pleasant a trip to the members of the P. S. V. M. A. over this noted farm and among its wonderfully choice horses and cattle, will ever be a pleasant recollection to those who participated in this pleasure.

Dr. W. A. Chrisman, of Philadelphia, successfully passed the examination in April for inspector under the Bureau of Animal Industry.

Dr. John R. Mohler, of the Bureau of Animal Industry, has been transferred from Los Angeles, Cal., to Kansas City, Mo.

NEW INVENTIONS.

A hoof-cutting tool with stationary arm, having a head formed thereon, a sliding jaw having a rack thereon passing through said head, a swinging lever having a pinion and pivoted on the head for operating the sliding jaw, a vertical jaw extended from the head and having a lateral projection with a plate riveted thereto, an extension on said sliding jaw projected at an angle, a knife mounted thereon having its bevelled edge upon a horizontal line parallel with the plate of the projection on the fixed jaw, and also parallel with the rock-arm of the sliding jaw, the lower side of said extension inclining downward from the outer end, whereby the hoof may be cut without contact with the frog by the extension carrying the knife, and means for adjusting the knife in the extension.

A guiding device for bridles, comprising a ring to be placed between the cheek and lateral portion of the jaw, a ring also to be placed outside of the cheek more or less parallel with the other, and a stem integral with both rings, to bear rearwardly against an inner corner of the mouth.

A calk-sharpener and hoof-trimmer with a tool-holder, comprising a shank having tool-holding means, a box loosely encircling the shank, clamping members encircling the box, handles fitted in between the ends of the clamps, and bolts passing through the handles and clamp members.

A rein-fastening, comprising two metal plates, one being provided with a socket, the interior of which is wider on two sides than is its mouth, the other having a tongue provided with projections on opposite sides, and a spring in said socket, having its ends bent slightly in a direction toward each other, to engage the opposite projections of said tongue.

A bridle-bit, comprising a mouthpiece having a resilient metallic continuous strip for its core, the ends of which are provided with integral return-bends, a yielding strip at one side thereof having its ends secured between the core and its return-bend, whereby are formed closed loops for the rings, a yielding strip at the other side of the core, and a yielding covering for the core and strips.

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POISONING OF CATTLE BY ANDROPOGON SORGHUM.

BY VETERINARY CAPTAIN H. T. PEASE, F.Z.S., F.R.M.S.,
PRINCIPAL VETERINARY COLLEGE, LAHORE, INDIA.

ANDROPOGON sorghum is a tall, handsome grass extensively cultivated throughout India. As a fodder it may be given green, or after having been dried and preserved for months. Some varieties are especially grown as cattle-fodder, in which case the stalks are cut when green, before the seed matures. It is stacked, and forms in some parts of the country the chief food of the cattle during the months when pasture is not to be had. It is very nutritious, and cattle do well on it. The seed is eaten by the people, and the grain holds, in India, a position very much like that of oats in Scotland. Indeed, by the natives it is regarded as more wholesome than wheat or rice, being more easily digested. The seed contains, normally, Professor Church informs us, 21 per cent. of potash.

It has for a long time been known to the native agriculturists, and to others who take an interest in cattle in India, that the usually wholesome and useful fodder-plant, "juar," andropogon sorghum, becomes, in certain circumstances, poisonous, and causes the death of animals which eat it in any quantity.

The conditions in which the plant becomes harmful are, when, owing to the failure of the rains, the plant becomes stunted and dried up. The popular idea among the natives of this country is that, in these conditions, the plant becomes attacked by a small insect to which they give the name of "bhaunri," and it is to the animal eating this insect with the juar that they attribute death. The disease is known to the people of the Punjab, where it is common, as "pathalargaya" or "pathalaggaya."

The fact of animals being poisoned by this plant has given rise, at various times, to some inquiries being made as to the cause, and various theories have been advanced to account for it. Some of these may be found quoted at length in the *Dictionary of Economic Products* under the heading "Sorghum." It will be seen that some have adopted the insect-theory. The following passage occurs: "It is otherwise with the insect-pests. Some of them are fully understood, others are so obscure that much difference of opinion prevails as to whether the poisonous property spoken of as possessed by the stems at times, when used for fodder, is due or not to an insect." In the special article on "Pests," in the same dictionary, it is stated "that the larvæ of a moth known in the northwestern provinces as bhaunri attack the juar-stalks in much the same way as the sugar-cane is channelled by the sugar-cane borer. These larvæ, in fact, bear so strong a resemblance to those found in the cane that Mr. Cotes suggests that they may set up decomposition sufficient to cause the poisonous properties of juar, regarding which so much has been written. It may be added that the prevalent idea among the natives is that the poison is the result of an insect, and it is worthy of note that it occurs at the same period and under similar conditions as in sugar-cane. The two following passages may be taken as representing the somewhat exhaustive controversy that exists on this subject: "The most peculiar disease to which juar is liable is that which makes the stalks poisonous to cattle if eaten by them when semi-parched from want of rain. Of the fact there can be little doubt. In the scarcity of 1877 great numbers of cattle were known to perish from this cause, their bodies becoming inflated after a meal on the young juar-plants, and death ensuing shortly afterward, apparently in severe pain. A good explanation, however, is not forthcoming. The opinion which is usually accepted by the natives is that young sorghum, when suffering from deficiency of rain, becomes infected by the insect to which its poisonous effects on cattle are due. Immediately rain falls the insect is said to perish, and unless the ears have appeared before the rain failed the crop often recovers itself and yields a good outturn of grain.

A totally different explanation of the great mortality among cattle in the year 1887 is given in a paper by Veterinary Surgeon J. Anderson (*Agricultural and Horticultural Society Journal*, new series). The following extracts will show the opinions arrived at by that writer: "From my recent experiments and investigation I have come to the conclusion that juar is not poisonous. Some stalks here and there contain insects, others a fungus, both of which are supposed by many to be the medium of the poison. Even if they were poisonous, they are not found in sufficient quantity to prove injurious and account for such wholesale mortality. The prevailing idea is that the plant has become poisonous not only from want of the usual rains, but also from the effect of the unusually hot winds, or that a poisonous gas is engendered in the stalks by the heat, etc. I look upon the plant as a destructive substance or thing, and not as a poison. It destroys life by acting mechanically on the system." The writer is of opinion that the disease is nothing more nor less than the ordinary tympanitis in the epidemic form. This explanation cannot be regarded as a satisfactory one, for the plant is only injurious in certain conditions, and loses its harmful properties completely after rain has fallen. I think, therefore, that we are justified in searching further for the cause of the excessive mortality induced by the plant.

The conditions under which sorghum andropogon becomes injurious are climatic disturbances, such as want of rain, excess of humidity, or damp, cloudy weather and extreme and unnaturally high temperature. It will be observed from the remarks already offered as to whether it is due to the presence of an insect or to some physiological changes in the growth of the plant, owing to climatic disturbances, the stems are not always liable to cause injury to cattle. The occurrence of the poisonous property, as it has been called, is simultaneous over a large tract of country, appearing and disappearing within certain fixed limits of time. The inference is, therefore, unavoidable that the stems have been affected or altered in some way.

The plant is generally grown on high lands as a "pharif" crop, and is only occasionally irrigated. It is dependent on the rains for its moisture. During my tour of last year in the Punjab I found mentioned in all the villages visited that this was a very fatal form of poisoning, the nature of which I could only speculate upon, as I was unable to see any cases of it at that season. Owing to the failure of the rains and the prevalence of a high temperature in 1895, however, I have been able to see animals which have succumbed as well as those the subjects of disease. Certain points at once struck me in connection with them. It appeared that the plant only gave rise to the symptoms when it had been stunted and withered up, when it had grown to a certain height, and when the rains had failed. Another point noticed was the rapidity with which the symptoms developed and led to a fatal termination, death being almost apoplectiform in some cases, and the majority of the animals attacked dying very rapidly. The people informed me that a crop of the plant which had become stunted and poisonous lost its poisonous properties if heavy rain fell. Taking these points into consideration, and looking to the symptoms shown by the affected animals, I came to the conclusion that the deaths might be ascribed to the action of an irritant poison giving rise to gastro-enteritis, and causing marked alterations in the blood. On inspection of the juar which had been given to the dead animals I was very much surprised on breaking open the dried stalks to find a considerable quantity of a white salt deposited in crystals in the pith, more especially at the nodes. The salt, to the taste, was cooling and saline, and on burning a piece of the stalk there was marked crepitation. I collected some of the stalks and subjected them to a chemical examination, which revealed the fact that the salt was nitrate of potash. The quantity of the salt in the stem was so considerable that there was little doubt in my mind that this was the cause of the death of the cattle which had been fed upon it.

At the last Sirsa cattle-fair a number of deaths were caused by poisonous sorghum, and the veterinarian to whom I had mentioned the fact of animals having been killed by the development of nitrate of potash in the stems found the plant in the same condition as that which I had previously examined. He sent me a small bundle of it for opinion, and I took the opportunity of having it carefully analyzed by Thomas Stephenson, a properly qualified analytical chemist, in Bombay, who reports as follows:

"I have made a chemical analysis of a sample of andropogon sorghum, and find that the stem contains nitrate of potash to the extent of 75 grains per ounce weight of the plant. This proportion refers to the bulk sample given to me by Veterinarian Captain Pease, but the salt is very unevenly distributed throughout the plant, being most abundant in the stem at the nodes or junction of the leaves."

Judging from these observations, I have no doubt whatever that the sorghum-plant, at times and in certain circumstances, such as have been mentioned above, becomes distinctly poisonous, owing to the amount of nitrate of potash which is contained in the stems.

The symptoms of poisonous doses of nitrate of potash are gastro-enteritis, tympanites, nausea and colic, staggering gait, stupefaction, polyuria, and death. Authorities on the subject state, sometimes, death from nitrate-of-potash poisoning is apoplectiform, and we may at times observe spasms and rotation of the eyeballs.

It is usually very rapid; the animal may succumb in a few minutes. Usually it lasts about half an hour, but seldom over twelve hours. The post-mortem appearances are those of hemorrhagic gastro-enteritis, cherry-red or purple coloration of the gastric mucous membrane and that of the small intestine, and superficial ulceration of this membrane. The intestinal contents are reddish-brown. The kidneys are ecchymosed and inflamed. The intensity of the effects of the drug are in inverse ratio to the fulness of the stomach. There can be no reasonable doubt that in some cases of poisoning from the sorghum-plant the cause is the presence of large quantities of nitrate of potash in the stems. Some of the samples I have examined contain 25 per cent. of this salt, so that a very small feed of them would introduce sufficient to carry off the animals which ate them.

I have been much interested to find that Veterinary Surgeon Mayo related similar experiences at the meeting of the United States Veterinary Medical Association, held in September, 1896, and published in the JOURNAL OF COMPARATIVE MEDICINE for June, 1897. Mr. Mayo, in the course of his remarks, is reported as follows: "Two years ago seven out of twelve head of cattle died during one night from the effects of potassium nitrate which was contained in four armfuls of cornstalks. These cornstalks had been grown upon very rich soil, and a large amount of potassium nitrate—25 per cent. of the dry weight of the stalks in some instances—had been stored within or deposited upon the cornstalk. It was then thought that poisonous quantities of potassium nitrate would only be found in corn grown on soil which had been heavily manured; but since then I have found potash present in poisonous quantities in cornstalks grown without fertilizer upon bottom and upland soils. Less than eight ounces of the salt will produce fatal effects in adult cattle. Poisonous quantities of potassium nitrate in the plant often occurs in patches not recognized by any noticeable difference in the growth of the corn. The presence of potash in poisonous quantities in the cornplant may be influenced by climatic conditions. In this State there is often a period of dry weather which may check the metabolic process in the plant and thus favor the deposition of potassium nitrate." It is curious to note that this peculiarity occurs in several species of the sorghums, and we find *S. hallpense* (baru) also poisonous in certain circumstances. As this plant is often the only one available for cattle-food in seasons of scarcity, owing to want of rain, it has been suggested that cutting up and washing will deprive it of its fatal properties so that it may be used as fodder.

UNIFORMITY OF STATE REGULATIONS AS TO STATE EXAMINING BOARDS.[1]

By W. Horace Hoskins, D.V.S.,
PHILADELPHIA, PA.

In presenting to you this brief review of the efforts put forth during the past year to secure, by State enactment, such legislation as would best conserve the interests of the profession in the several commonwealths of our country, and thus ultimately lead to some single plan embracing a national supervision of veterinary-degree conferring power, I have but little to offer you as the outcome of of this work, but will draw your attention to some of the obstacles preventing the attainment of our wishes.

The following States, during the past year, presented to their Legislatures bills looking to registration of all practitioners of veterinary science and the granting of licenses to all future practitioners wishing to enter upon practice in these States:

Colorado. A proposed bill for the appointment of a board of examiners, also the registration, examination, and licensing of graduates; non-graduates able to prove having practised in the State for five years previous to the passage of the law, allowed to register within ninety days after the bill has been adopted. Failed to pass. Reasons for the same, lack of united influences of veterinarians; insufficient number of veterinarians in the State; a legislative deadlock at the end of the session.

New Hampshire. A proposed act requires registration of veterinarians after July 1, 1897. Satisfactory examination required before an appointed board of examiners, consisting of three persons who must be members of the State association. This bill failed for no other special reason than lack of united effort of the veterinarians of the State.

Indiana. Desired the consideration of a statute to regulate the practice of veterinarians. This bill failed.

Minnesota. The bill providing for a board of examiners was revised, and must now be composed of legally authorized graduates from recognized schools; graduates must submit their diplomas, and must pass any required examination before the board; non-graduates not permitted to appear for examination. These amendments to the law in force in Minnesota make their provisions among the best in the land for the encouragement of higher veterinary education.

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[1] Presented to the Association of Faculties of the Veterinary Colleges of North America at Nashville, September, 1897.

Connecticut. Bill for registration and establishment of a State board of examiners. Defeated by lower branch of the Legislature. Lack of united support among the veterinarians; the State society not strong enough or sufficiently united.

Michigan. State Legislature failed to pass the bill to provide for a State board of veterinary medical examiners and better regulation of the practice of veterinary medicine. The same causes operated here—lack of organized support, and those directed to present this legislation had not the advantages of a needed organized profession back of them.

Wisconsin. Bill to regulate the practice of veterinary medicine and surgery and dentistry. Only graduates of legally chartered schools can register, others must pass examination before an appointed board of examiners. This bill failed to pass, in part because its provisions, while desirable, were too stringent, and again, lack of hard work on the part of those most interested.

North Carolina. A bill to regulate the practice of veterinary medicine and surgery. To prevent delay and inconvenience, two members of the board of examiners may grant a temporary certificate to practise veterinary medicine or surgery, which shall be in force only until the next regular meeting of the board of examiners, but in no case shall such temporary certificate be granted to any person who has been an unsuccessful applicant for a certificate before the board.

In all these States, except Minnesota, the efforts proved fruitless of results, and I shall review briefly the reasons therefor. In each of them, under your direction, I placed myself in communication with those directing these movements, and, so far as possible, secured the adoption of a general plan, consisting of an appointed board of examiners of graduates of recognized schools, and that said board would also act as a board of registration. I endeavored o have eliminated from these proposed statutes any parts that would prevent future recognition of licenses granted by one board among the several others, and in some was able to secure the insertion of provisions that would tend toward a central board of examiners.

Now, in general, we find that the chief causes for lack of success may be summed up under the following heads:

1. Lack of thorough organization of the profession in the several States.

2. Indifference of those who should be most interested in the securing of such safeguards.

3. Lack of public education as to the scope and importance of the science of veterinary medicine.

4. Want of a central directing force, to give impetus and support to these movements.

Now, permit me to say a few words about these several chief causes, that we may better understand the conditions and consider the remedies required.

First, in almost every State there are from four to ten non-graduates, or self-made practitioners, to every graduate. The former are more potential in defeating legislation than the latter are in securing it, because, generally, they have been longer residents of the State, and look with suspicion upon every movement that seems to be directed by college graduates.

Now, as I am firmly convinced that no legislation can be secured in any State that will rob these men of their means of a livelihood, for such legislation is contrary to the "bill of rights" of our land, I think it would be well for the profession in every State, before the final drafting of proposed legislation, to call together a few of the best non-graduates and submit to them the plan of action, and thus disarm, in great measure, the hostility of these men, which is ofttimes the outcome of ignorance and misconception of the purposes and aims of such legislation.

I am opposed to all legislation that has for its aim only the registration of practitioners throughout the State by any county officer, whose source of remuneration is ofttimes by fees only, and thus an incentive to register large numbers presents itself, and little consideration is given to the spirit and purpose of such laws. I am only favorable to legislation that will place registration in the hands of a board of examiners; therefore, in efforts to secure this recognition, there must be a more conservative spirit among all legitimate practitioners of veterinary science, and, before such efforts are put forth, a more thorough organization of the entire profession. We have found in some States many graduates arrayed against proposed legislation, because in some unimportant feature it failed to meet their own views, and these narrow, selfish fellows, raising themselves against the broader interests to be conserved, have sacrificed the chances of successful legislation. In most instances we have found these same members of the profession unwilling and indifferent enough to deny those who were planning these measures their views and assistance in conference as to the best constituted safeguards to be secured by such legislation.

Perhaps, of all the professions giving much to the common welfare of the whole people, there is not one that has so completely forgotten the need of educating the public to the broad work done by our members in the interest of public health and safety. For hundreds of years, abroad and at home, veterinarians have given their protective influences to work that concerned public health in a great degree, and in so doing laid no responsibility upon the public in return, forgetful of the first duty, in a measure, to our fellow-man, that all safeguards, privileges, and pleasures lay on the individual added responsibilities, and these must be discharged by better recognition and concessions to the source-giving power from which they proceed. Our members have gone on, and are still pursuing these same lines, increasing their zeal and interest in broader sanitary safeguards, in conserving the vested moneyed interests of a large proportion of our people, taxing their whole minds and physical powers in the field, the laboratory, the public highway, the farm, the breeding establishment, the public shops, and common households, to better protect the whole people in the field of preventive medicine, utterly forgetful of the higher duty of teaching the individual his responsibility, and having him at our side at all times in aiding such measures of public import that contribute to the easier attainment of these ends, and thus save to the community the value for years of the more mature mind of the brain-worker, whose years of labor, at best, are short when spent in such a field of uncertainty as medicine has proved for centuries. I wish it were possible for me, through your important organization, to speak to every veterinarian in our land of the great importance of educating public opinion, and how hard must be the labor of a few of our profession in every community in gaining legislation that should be conceded to us by a common impulse of the people, were they properly educated to a true conception of our work. How best this organization can remedy this widespread defect of our education, I leave to the more mature consideration of many of our members, whose painful experiences and unceasing efforts are too well known to many of us to need further comment from me.

Want of a central directing power is much felt in all such efforts, and I know of no one line of work where this organization could be so great a force as in accepting in full the responsibility of directing the whole work of legislation. Neither nation nor State in any fitting measure has given to your efforts in years gone by worthy recognition of the great interests you have protected. Name me the school in the whole of North America that has ever fittingly compensated a single promoter or teacher? Name me a State, county, city, or town that has not received, through your efforts in educating men for the profession, a greater return in better protected invested monetary interests (not to speak of their work in protecting public health) than you have received in return. Your schools are without proper financial support; without national or State recognition; the public, ignorant of their importance, leave their wealth to pass into other channels, often to be worse than wasted, while your labors and difficulties become more perplexing and unremunerative. I am optimistic enough to believe that this need not be so for any great period longer, could this organization become a great central educational bureau, with its corps of assistants all over the country. A university-extension system of work could be directed, and the public press be made to serve as a common carrier of such useful information as would best further our ends, and not in these years of advanced education have copied in some paper in every State of the Union the apparently curious information that there existed in one large city of our land a hospital for the treatment of the domesticated animals. The question of food-inspection alone is one that the average reader is more ignorant of than any other problem half as important to his own personal welfare; yet in the great work to be done, how little has been accomplished! Here and there in our great commonwealths may be found a few towns where meat- and milk-inspectors are regularly maintained, and in every instance this has resulted from individual efforts through the lay press, which could have been extended by direction through a central bureau to hundreds of points where there are to-day but single ones.

I hear some one say, If we went to the legislative halls, and asked for legislation to protect legitimate practitioners and prevent future entries into this profession save those who had received a proper college education, it would be said we had an axe to grind, a selfish motive in view. Yes, and any director or promoter of a college who could not answer this question with such force and clearness as to shame the one who presented it, and win for his cause a large measure of support, is not worthy of the place and power vested in him in such a position. Think, for a moment, what the Bureau of Animal Industry alone has done for vested money interests of our land, and show me as ill-paid a body of educated, able men the world over. These men have come from your colleges, and are you not worthy of some consideration, some support, some recognition, or some evidence of appreciation of your work?

Now, such a bureau could well direct on what lines such legislation should be formed; could well suggest the best means of securing the assistance of the daily press, and furnish to them suggested features of the public aspect of needed legislation as to interest the public reader, and thus make easier the attainment of these measures, and keep more uniform the character of such legislation, and thus serve the true interests of higher education and add to the measure of pleasure, happiness, and contentment of the greatest nation of people in the world's history.

ADDRESS OF WELCOME OF MAJOR JOHN J. McCANN TO THE MEMBERS AND DELEGATES AT NASHVILLE ON BEHALF OF THE STATE AND THE TENNESSEE CENTENNIAL.

It is always a pleasure to me to extend the hospitality of my fellow-citizens and the management of the Tennessee Centennial and the citizens of the United States, and I assure you that I feel an extraordinary pleasure in welcoming you within the confines of our State.

There is no animal which confers so many blessings upon mankind as the horse, and I feel happy because I am permitted to address a class of gentlemen whose aim and object in life is not only to relieve his pains, but to release all the penalties to which horse-flesh is subjected.

I have been over fifty years in preparing the impromptu speech which I make you to-day.

If there is any subject on earth with which I am more familiar than any other, it is the horse. My earliest recollection is closely associated with the "clothes-horse," upon which I used to hang my clothes when I was a child, and one which saved my fingers from many a burning. With what boyish delight did I dwell upon my "rocking-horse." He was a "goer"—you bet he was. Like Alexander the Great, I found that my Bucephalus was afraid of his shadow; so I turned his head to face the sun, and he couldn't see it. Rarey, the great horse-tamer, wasn't in it with me. I sobered him down, so that in less time than it takes lightning to chase a squirrel down a hickory tree he was not even afraid of the tom-cat. Philip, the father, immediately said: "Seek, my son, another kingdom; Macedonia is unworthy to contain thee." Acting upon parental instructions, I struck a bee-line for a neighboring stream, where, with dangling line and a wriggling red-worm, I threw tempting bait to the red horse, "roped him in," and soon I found him dangling on my string.

The next thing was the "wood-horse." Gee whiz! How I sweated and toiled over this fellow! I had a strong constitution, stood a good deal of rest, and wound up with my head full of "wise-saws and modern instances."

The next thing I struck was the "sea-horse." He was more often heard of than seen in public. I never liked him very much, because I am built not to like any fellow who is fond of nothing stronger than water. (Laughter.)

Then there is the "horse-fly." I never had much passion for him. He is not easily shaken off. He is a "sticker," from pastern to withers; to be more comprehensive, I will say from snout to crupper-bone, and sometimes creates a disposition on the part of the horse to walk out from under the saddle and give us a new evidence of the "fall of man." (Applause.)

Then there is the "old horse," with his mane flowing to the breeze, his tail over the dashboard, splitting the road wide open, and teaching a gazing world that age ain't nothing; "it is blood which tells." How often have I seen the aged veterinarian strike a bee-line for a grocery, annihilating distance! Robert J., Hal Pointer, Iroquois, and other quick-steppers were all left in the distance as they passed the grand stand, and amid the shouts of the multitude you saw the veterinarian smile as he took down the purse which contained the price of his fee and received the congratulations of the horse-owner as he said: "The veterinarian is a sure winner."

The next fellow is the horse-trader, as he came charging down on me for a new deal. I cannot tell you his exact age, as he had worn his teeth off in champing the bit, so eager was he for the fray. But the slickest one in this land I ever knew was the boy-trader. He had a mule which he had trained so that when he touched him on the flank he would immediately sit down. He struck an Englishman one day from across the briny deep, who had come to this country to take him a glorious hunt. As he rode along he met a country boy, and as they sauntered along the lane together the boy espied a rabbit in the field. He immediately touched his mule in the flank, and the mule sat down. The Englishman asked what was the matter with the mule. The boy replied that he was a "setter" and he was setting the rabbit, and showed the Englishman the rabbit as he scampered away. A short distance further on the boy espied a partridge. He immediately touched the mule on the flank, and down he sat. The Englishman was overjoyed, bantered the boy for a horse-trade, and the boy finally got rid of his mule for the Englishman's horse and a hundred dollars to boot. They changed mountings, until a short distance further along they crossed a stream. The Englishman put his spurs into the flanks of the mule and urged him forward, when the mule immediately sat down. Says the Englishman: "What is the matter with him now? "Oh," says the boy, "he sets just as well for suckers as he does for rabbits and birds." (Loud applause.) In a word, that mule "went all the gaits." And the only reason my fellow-citizens seem to have in trotting me out to make addresses of welcome grows out of the fact that I talk to the boys, smile on the girls, and take another kind of smile with the boys. In fact, my tank-capacity has been equal to any show which comes our way.

Aside, now, gentlemen, from levity, I again welcome you to our city, and desire to say to you that you are monarchs of all you survey, and there is none your right to dispute. If there is anything you want which you do not see, let me know, and you shall have it. I am a brother-in-law in the Methodist Church—Dr. Haggard's church—and therefore can do no wrong. God bless every one of you. It is just such gatherings as we have to-day which add to the glow of that spirit of nationality so essential to the nation's prosperity. And while you attend to the business you have in hand, I will take the girls on a trolley ride and return them all to you in perfect safety. I was born in this Southland, where the first lessons we were taught by our mothers was to take care of the girls; let them have a good time and show them the elephant, tusks and all. And I know that I shall be amply repaid for my trouble by the sweet music which will flow out from this row of chimes you have brought with you. (Applause.) We will now move out, girls, and when we get back you will pronounce a benediction on the trip and say that you have been out with the handsomest "charger on the stretch." (Laughter.)

And the members of the press are here—the faithful chroniclers and motive-power of all associations, and with whom I have a contract to write all my speeches, will faithfully chronicle all that is done and said in my absence, and I will be sure to keep up with the procession. May Heaven bless you, newspaper boys! They have condoned my faults and magnified my virtues to such an extent that, while my dear, sweet wife don't regard me as a Solomon, she thinks I am no sardine, by a large majority. (Laughter.)

We have the lights from the great universities among us to-day, whose permeating beams will brighten our way through the midnight of gloom and doubt. Guided by our past experiences, and aided by such lights as these, how can we fail to succeed in relieving the pain which exists in the forest of the lumbar region of the noble horse. (Applause.)

THE ACTUAL CAUTERY.[1]

By William Dougherty, D.V.S.,
BALTIMORE, MD.

It is not my intention to give you the history or the different modes of using the actual cautery, but will confine myself to the use of it in chronic hip- and shoulder-lameness.

Five years ago last March there was sent to me a brown horse lame in the near hip; had been lame for twenty-two months, and had been treated by several practitioners. When the animal arrived at my place he was the lamest horse I had ever seen; the muscles of the gluteal region were so much atrophied that one could see the articulation; he had been blistered several times, also had had setons in hip. The last treatment he had was that of a homœopathic practitioner, and consisted of the administration of internal medicine.

I informed the owner that I did not think it worth while to do anything more, as I would not give any hopes of recovery; but she insisted that I should try, and so I did. Thinking the matter over, it came to my mind that in all the cases of hip-lameness I ever saw recover from the use of a blister there was a slight amount of pus exuded from the joint, and it then occurred to me that the point of the actual cautery would be the proper thing; so I fired him, making five points, viz., one directly over the joint and four surrounding it; on top of that a cantharides oil-blister (one to six) was used.

The result was that there was a free discharge of pus from all five of the punctures; after ten days the animal commenced to improve. That consisted of all the treatment, save rubbing the muscles of the hip with white spirits every day. The animal made a complete recovery by the first of August, and has remained sound to this day (five years and six months).

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[1] Presented at the Thirty-fourth Annual Meeting of the United States Veterinary Medical Association, Nashville, September, 1897.

There were two other cases of hip-lameness, and one of shoulder-lameness, that were nearly as bad as the one I just cited: they also made complete recoveries; the balance of the cases, twenty-eight (making a total of thirty-two), were not so bad.

In some of the milder cases I used but one point of the cautery, directly over the joint, and in all cases using the cantharides oil-blister also. I use a very large and heavy iron with a sharp point, and when the muscles are heavy I fire about one and a half inches deep; when there is much atrophy I do not fire so deep.

I have used, on one or two occasions, the thermo-cautery; that I do not like for this particular operation, as it does not carry fire enough and will cool off in the muscle.

I have also used the large points in cold abscess, fibrous tumors, and in the first stage of fistulous withers; in the fistulous withers I have also used a corrosive-sublimate blister, and had better result than from any other form of treatment.

In this short paper I will not offer any theory, physiology, or pathology of the treatment, and in conclusion will say that I have abandoned the superficial use of the cautery for twenty years—that is, the firing with straight irons, having seen hundreds of cases of superficial firing with no beneficial results, and leaving long cicatrices that were eyesores.

This is a subject that will bear a great deal of thought and investigation, as it is one of the oldest forms of treatment in veterinary practice. I trust that at our next meeting many of our members who are more able and capable will give it ample thought and better elucidate it to the members of this Association.

PRESENTATION OF THE SUBJECT OF STATE CONTROL OF TUBERCULOSIS.[1]

By John M. Parker, D.V.S.,
MEMBER OF THE MASSACHUSETTS CATTLE COMMISSION, HAVERHILL, MASS.

(Concluded from page 615.)

But the work of the Board does not end here. The law says (Section 45 of Chapter 491, of 1894, as amended by Section 10 of Chapter 496 of 1895): "When the Board of Cattle Commissioners or any of its members, by an examination of a case of contagious disease among domestic animals, become satisfied that the public good requires it, such Board of Commissioners shall cause such animal or animals affected therewith to be securely isolated, or shall cause it or them to be killed without appraisal or payment, provided, however, that whenever any cattle condemned as afflicted with the disease of tuberculosis are killed under the provisions of this section, the full value thereof at the time of condemnation, not exceeding the sum of sixty dollars for any one animal, shall be paid to the owner thereof out of the treasury of the Commonwealth, if such animal has been owned within the State six months continuously prior to its being killed."

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[1] Read before the Thirty-fourth Annual Meeting of the United States Veterinary Medical Association, Nashville, Tenn., September, 1897.

There was nothing in this law to prevent an owner having his herd tested by private test, if he so desired. If the test was made by a regular veterinarian, the State could only accept it, appraise, and destroy the cattle and grant the owner compensation. This was an ideal method for both the unscrupulous owner and veterinarian. By this method there were no restrictions placed on the owner—he could test as many or as few animals as he desired. Many times owners would have their herds tested without any idea of attempting to keep them free from disease. When the reacting animals were destroyed others were bought without test and often placed in the same barn without any attempt at cleansing or disinfection. Such a method of doing business was neither common sense nor business-like. There was little use in the State paying for cattle that reacted to a private test unless the owner really desired to clean up his herd, and meant to stick to it once he began it. This is a point of a good deal of practical importance. The business man and the capitalist; the men who make a business gain out of the sale of milk from tuberculin-tested cows; the men who run their own milk-route, who have their own customers, and who get from two to three cents more per quart because of the test; such men naturally wish their cows tested, and would naturally keep it up as a business investment. Then, again, the men who raise their own stock—and who wish to get rid of disease for the sake of their own herds, in which they are interested—would also be likely to keep up the work in one way or another, for they think that if they are once rid of the disease they stand a fair chance of keeping free from it. They have got an object in view; they aim at something definite.

On the other hand, the dairyman who ships his milk to the contractor, who gets the contractor's price, who has the surplus question to deal with, who sells his cow when she runs dry and buys fresh cows to replace the old, who has to buy frequently and test every cow he buys, and run chances at that—what encouragement has he to keep up the work? There is no profit in it for him; he has no increased price for his milk; there is simply added expense without increased gain. Is it any wonder, then, although at first he may be enthusiastic, yet, after a time, he loses interest, and, finally, through want of enthusiasm and want of encouragement, he is apt to become negligent and introduce cows into his herd that have not been tested? And this carelessness and indifference, of course, is liable at any time to undo any good that had already been done.

Realizing something of this, and feeling that many farmers having their herds tested by private test did not recognize their responsibility in the matter, a letter was sent to each individual, calling his attention to the law allowing him compensation "not exceeding the sum of $60" for animals killed as tuberculous, provided such person shall not have, prior thereto, in the judgment of the Cattle Commissioners, by wilful act or neglect contributed to the spread of tuberculosis; but such decision on the part of the commissioners shall not deprive the owner of the right of arbitration as hereinafter provided." The letter then continued: "If an owner does not thoroughly disinfect and cleanse his barn, or if, after having had cattle taken and paid for by the State, he introduces untested animals into his herd, he has through his neglect contributed to the spread of tuberculosis, and, therefore, under this section, forfeits his right to compensation for such tuberculous animals as may hereafter be found in his herd."

After having had their attention called to the matter, one would naturally suppose that farmers who had gone to the expense of having a private test made, costing them anywhere from $10 to $100 and over, would take interest enough in the matter to cleanse their barns, especially after being warned of the penalty of neglect; but on investigation it was found to be the exception rather than the rule when any cleansing, even of the simplest nature, was done.

The Board then decided to send around a special agent, whose duty it would be to call on each individual who had had his herd tested, see whether the barn had been attended to, and report to the Board. This was done, and this work has been specially productive of much good. Up to the end of August 530 barns, where private tests have been made, had been visited; of these 530 barns it was found that only 42 had been cleansed and disinfected, and in 488 absolutely nothing had been done in the way of cleansing. Out of the 530 only 95 were respectably clean, and 435 were filthy. The usefulness of this work is well known by the results following these visits. By the end of August a second visit had been made of 158 barns where the owner had previously been found negligent. Of these 158 barns visited the second time 134 were found cleansed and disinfected, and in only 22 had nothing been done. These 22 were in a dirty condition, several of them being absolutely filthy. Such work as this is exceedingly important, not only because of the practical amount of good it does in removing infectious material from the barns, but in an educational way as well. This, I believe, is the key to the whole question, and it is surely something that no intelligent man can reasonably object to.

During the early months of the year the testing of herds by private test, where the owner seemed to care for little except how to get a good appraisal for his cattle, became so frequent that in June the Legislature passed a law to the effect that "no person having animals tested with tuberculin shall be entitled to compensation from the treasury of the Commonwealth for any animals that react to the tuberculin-test, unless such testing be done by the State Board of Cattle Commissioners, or their authorized agents acting as such at the time of the test, and such testing shall be subject to the supervision and control of the State Board of Cattle Commissioners. This act shall take effect upon its passage. (Approved June 10, 1897)."

The immediate effect of this law was to shut off indiscriminate, irresponsible testing. The State is willing to assist an owner to purge his herd from disease if the owner is in earnest, but before it will undertake to assist it requires him to sign a written agreement that he will observe the sanitary regulations prescribed by the Board, and that he will not introduce any animals into his herd without first subjecting them to the tuberculin-test. In this way herds are only tested where the owner is not only willing but anxious to keep up the work, and, of course, under these circumstances there is a much better prospect of the work resulting in permanent improvement.

But many times where there is not only enthusiasm but unlimited capital behind the endeavor to rid a herd of disease, even then it is not always an easy matter. About eighteen months or two years ago a number of herds in Massachusetts were tested with tuberculin, under promise from the owners to observe certain conditions. Among those tested was one belonging to Mr. H., consisting of 81 animals. This herd was carefully tested and the figures submitted to the Board, and 28 animals considered certainly diseased by the Board were condemned and destroyed, and a number were held for retest. The animals held for retest were kept in a separate pasture and were not allowed to mingle with the rest of the herd. Of these, 13 animals were retested, condemned by the Board, and killed; the others passed as sound. Before these cattle were allowed to join the herd an attempt was made to disinfect the barn as thoroughly as possible.

In October, 1896, sixteen months after the first test, the farm was again visited, and one lot of 50 head kept in the new barn were tested; of this number 29 were of the original lot, and 18 were Vermont cattle that had been tested carefully before being shipped to the farm, especial pains being taken to secure only healthy animals; 3 others, not tested, were introduced into the herd on or about September 30, and at that time Mr. H. notified the Board, and it was expected that the entire herd would be retested immediately. However, because of the difficulty in securing sufficient tuberculin, a delay of a few weeks occurred, and it was not until October that two members of the Board visited the herd and tested the lot. Of the 50 animals tested, 27 reacted, were condemned and killed, 25 of which proved to be tuberculous upon post-mortem examination.

About two months later the remaining 28 animals in the old barn, which had been kept entirely separate, were tested and 16 gave well-marked reactions. The barns were disinfected and the 16 cows, being mostly dry cows and springers, were isolated on one side of the barn, two partitions being placed between them and the other cattle. They stayed here until March 5th, when they were again tested, and at this time they gave 14 well-marked reactions. The temperature of the other two cows at the second test read as follows:

No. 129. 1st test, Jan. 8, 101°, Jan. 9, 101°, 104.4°, 103.4°, 103.2°.
2d test, Mar. 5, 101°, Mar. 6, 101.3°, 101.3°, 101.3°, 103°, 99.4°.
No. 5468. 1st test, Jan. 8, 101°, Jan. 9, 104°, 105°, 105.1°, 104.4°.
2d test, Mar. 5, 101°, Mar. 6, 101.4°, 101.4°, 102.2°, 102.2°, 102.2°.

Both were killed, and on post-mortem examination proved to be diseased. The barns were again disinfected with bichloride of mercury, 1 : 800, and whitewashed later.

On May 1, 1897, the entire herd of 84 head were again tested, and this time 15 animals, or 17 per cent., gave reactions, and were killed. The post-mortem examinations showed these animals to have been only very slightly diseased. The barns have been twice disinfected during the summer, and another test will probably be made in October. After every test, when cattle have been condemned, the herd has invariably been replenished with tested cows from Vermont.

A second herd belonging to Mr. E. is another good illustration of the difficulty in thoroughly disinfecting barns. After being first tested and cleaned up in October, 1894, this herd was retested on March 17 and 18, 1896. There were 80 animals in the herd, 78 of which were tested, 2 animals having a temperature too high at the time to be injected. 14 animals reacted, or showed a suspicious rise in temperature; they were immediately separated from the remainder of the herd, were again retested on June 19th and 20th, at which time 2 were released, 3 were condemned, and 9 were continued in quarantine. On October 7th, 8th, and 9th these 9 quarantined animals were tested and condemned.

On August 16 and 17, 1896, 64 of the original herd and 1 animal which had been introduced recently were tested. None of the original animals reacted to the test, while the animal which had been introduced from the outside reacted, was condemned, and, upon post-mortem, was found to be tuberculous.

In the meantime a new barn had been built and was used as the home barn. The old barns were disinfected as thoroughly as possible and the young stock and dry cows were housed in them, the fresh cows being brought to the new barn as they came in.

In the month of August, 1897, exactly one year after the previous test, the herd was again tested. At this time there were 154 animals at the home farm. These were all tested, 22 were condemned and killed as tuberculous, and 32 were released. 5 out of 54 at the second farm were condemned, and 1 out of 58 at the third farm was also condemned. All these cows were found to be diseased, the disease being very slight and confined entirely to the bronchial and mediastinal glands.

It is but fair to state that another of the reacting animals was a registered bull, "Sir Michael." He had been kept isolated from the rest of the herd, except when being used for service, since March, 1896, when he first reacted. At that time the temperatures were: 8 P.M., 101°; 6 A.M., 101°, 101.2°, 103.4°, 104.4°, 104.3°, 104.2°, 104.3°, 104.2°, 103°. On June 13, 1896: 9.30

P.M., 101.1°; 7.30 A.M., 102.3°, 103.1°, 103.1°, 103°, 103°, 101.3°. On August 18, 1896: 7 P.M., 101.2°; 5 A.M., 101.1°, 101°, 102.2°, 103.4°, 104°, 103.4°, 103.4°. On August 10, 1897: 8 P.M., 101°, 101.1°; 7 A.M., 101.2°, 103.1°, 104.3°, 105°. This bull has been used for service on nine cows out of the twenty-two that have since reacted and were killed, one of the cows had been served as recently as July 21, 1897, or just about four weeks before the last test was made. The fact that none of the cows showed any traces of tuberculosis except in the bronchial and mediastinal glands would seem to exclude the bull as a possible source of infection so far as sexual intercourse was concerned in any of these cases.

In studying the problem of State control I should like to call your attention to the principles of sanitary science as applied in the United States and European countries to the suppression and prevention of contagious disease. A few years ago, at the time of the latest cholera-scare, the seaports of this country were all guarded and a strict quarantine of all vessels coming to this country from infected ports was enforced. Most European countries took the same precaution. Great Britain, however, proved an exception to the rule. Her ports were open to the world, vessels of all nationalities went in and out, and tourists and travellers from all countries had the right to go and come as they pleased. Great Britain relied on the excellence of her internal sanitary arrangements to combat the disease. If she had placed all vessels from infected ports in quarantine the loss of the country would have been tremendous. The traffic between Great Britain and other countries was too great, and the number of vessels entering her ports from infected countries too numerous to permit of it. The disturbance to traffic would have been enormous, and, in the opinion of the authorities, the gain would not have been commensurate with the probable loss. Other means, therefore, had to be relied on to control and check the spread of the disease. In the same way the difficulties in the way of the total and permanent exclusion of the tubercle bacillus are too great to permit of our relying on these means alone. We must not only attempt to control the breeding-places of the bacillus, and lessen the number that are mixed with the dust in infected premises, but we must look to the perfecting of internal sanitary arrangements, so that individuals may not become such easy victims of the disease, and, by using all the means in our power, and by constant and continual effort, the existing conditions may be bettered, so that in time we may reach some measure of success without the great expense involved in the total destruction of all animals that react to the test.

In Massachusetts during the year 1895 there were 1549 cattle tested by private request, representing one hundred and nine entire herds. Of this number 433, or 27.95 per cent., were condemned. In 1896 there were 2021 cows tested by private request, representing two hundred and eighty-one entire herds. Of this number 1098, or 54.32 per cent., were condemned. This year, up to July, full returns had been received from 1810 cows, representing one hundred and fifty-three entire herds. Of this number 911, or 52.54 per cent., were condemned. This percentage includes four herds recently cleaned up in the western part of the State. These four herds include 96 animals, only 3 reacting, making a percentage of 3.1. It will be interesting to see how these tests stand a year from now.

This work is different from the work of the local inspection in that the inspectors only pick out such animals as show some physical evidence of disease, while this work represents the testing of entire herds scattered at haphazard over the Commonwealth. If this is taken, then, as any sort of guide to the number of diseased cows in the State, there are, roughly, over half of the milk-cows in the State that would react to tuberculin.

During the present year the average price actually paid for cattle condemned for tuberculosis has been $35.80 per animal. The number of neat cattle over one year old assessed in the Commonwealth in 1896 was 212,601, and probably about seventeen-twentieths of these were milk-cows. It does not require much calculation, then, to find out that if all cows were tested, and all those reacting were killed off, it would cost the State about $3,500,000 to pay for the cows killed, not to mention the cost of the executive portion of the work.

The authorities in Pennsylvania and elsewhere have placed themselves on record as being of the opinion that, from the enormous cost of the work, the testing of every cow in their various districts is impractical. Massachusetts is of the same opinion. She believes that the danger to man from bovine tuberculosis can be lessened by the adoption of broader methods in control work. For example, I believe that the entire work would be benefited, both as to expedition and thoroughness, if the State was divided up into veterinary districts, each district in charge of an experienced, qualified veterinarian, who would be responsible to the commission for the supervision of the herds and the slaughter-houses established by the

State or city in his district. It is time, I believe, that the country slaughter-house was done away with. It is time the State took the matter up, and I believe that an opportune moment for the change has come. Greater economy must be used in the disposal of carcasses of animals that react to the test, especially as over 90 per cent. of the animals condemned seem to have only localized tuberculosis. I believe that State slaughter-houses could be established: that stalls in these slaughter-houses could be rented to local parties. This would greatly simplify the inspection service, and the dirty, filthy country slaughter-house would have to go; and there would be this further advantage that in State or municipal slaughter-houses, under a proper system of inspection, much of the meat at present condemned to the rendering-tank could safely be used for food. This is a matter that I hope to see taken up and acted on at an early date.

Madison, Wis., receives milk from a herd of thirty Jersey grades. As soon as drawn the milk is carried into a screen-protected power-house, and run through a separator, not to collect the cream, but for cleansing, and the cream and milk come together again in a large can, where they are thoroughly stirred and then moved across the room to a surface-cooler, a metallic surface of nine feet square, over the back of which runs a stream of ice-water, while the milk runs down the face of it into cans. This reduces the temperature from 85° to 45°. From these cans the cool milk is elevated and poured into a moving vat with spring-faucets. The vat travels on a narrow railway over a box in which are placed the delivery cans of glass, quarts and pints, the stoppers being coated with hot paraffin. When filled these are placed in cases thirty inches long and ten inches high, and covered with finely chopped ice. This milk sells in Madison for five cents a quart, and will keep from twenty-four to forty-eight hours longer than when treated in the ordinary way.

A recent test of a six-year-old bay gelding, sired by a thoroughbred horse, the dam by Onward, travelled a distance of thirty miles on the Lancaster pike, leading from Philadelphia, without being touched with a whip or urged with a line, in two hours and thirty-nine minutes. The first ten miles in fifty-six minutes, the second in forty-four minutes, and the third in fifty-nine minutes. This was at a trotting gait. This horse recently ran a half mile in forty-eight and one-quarter seconds.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

UNDER THE DIRECTION OF J. PRESTON HOSKINS,
PRINCETON, N. J.

FOOT- AND MOUTH-DISEASE.—Just as one year ago, the foot- and mouth-disease has broken out again in its severest form, and has already worked considerable damage. The course of the disease is again such that the local trouble on the mucous membrane of the mouth and hoofs is usually in process of healing when the cattle are seized with sudden and severe disturbances in their general condition, and after a very short time death ensues.

In regard to the cases which ended fatally, the reports have been, almost without exception, that the animals were very severely afflicted with foot- and mouth-disease. This could be seen in the almost complete loss of appetite, the failure to secrete milk, the very significant state of exhaustion and lack of interest, as well as in the high eruptive fever which sets in very frequently with a violent chill. Yet such severe cases occurred often enough without death or other especial complications following in the course of the disease. The exanthema (or eruption) in the cases which ended fatally showed absolutely no difference from the normal phenomena, and neither from its appearance nor its course in itself, nor the number, size, and character of the efflorescences, could any data be obtained which would enable one to determine the fatal cases as such.

A striking increase in the pathological changes could certainly not be proven. The course of the disease was, as a rule, that the bosses of matter, after the bursting of the blebby efflorescences, began to heal over in the fatal cases as well as in those which recovered. The edges were smooth, and a layer of new-formed epithelium or fresh epidermis could plainly be seen. With the continuance of the healing process at the localizations, the general condition of the animal improved. Appetite and rumination returned, and the secretion of milk began again gradually. In individual cases the fact was especially emphasized that the desire for food was extraordinarily abnormal; a fact which received full confirmations from the conditions present on opening the first stomach or paunch. In this far-advanced stage of the disease the animals were either very suddenly overtaken by death, or, after severe and sudden changes for the worse in the general condition, succumbed in the course of a few days. The sudden change for the worse showed itself again in the loss of appetite, in the state of exhaustion, and by a striking difficulty in breathing (dyspnœa). Yet this relapse was not accompanied by feverish symptoms, as Imminger has already observed. In all cases death followed pretty directly, the animals simply collapsing or tumbling over and dying quickly.

All these phenomena are not new, and simply agree with the observations which have been made here in Lower Austria in former years. I will add, however, that experience here in Lower Austria, as well as in Bavaria, in the severe cases goes to show that the care which the animals are wont to receive seems to have no influence on the course of the disease described. The severe and fatal course of the disease occurs as often in stalls which are kept with the greatest cleanliness and enjoy the best hygienic conditions as in those which are poorly situated, damp, with poor ventilation, and no attention.

I will now touch upon the data which were obtained by a post-mortem examination. The results show some peculiarities. Beside the loss of material in the healing process of the mucous membrane of the mouth and on the hoofs, there was almost in all cases the symptoms of an œdema of the lungs, and besides changes in the first stomach constantly present, while the changes in the other divisions of the stomach as well as in the intestine were very slight, and in individual cases failed entirely. The inflammatory œdema of the mucous membrane of the rennet (fourth stomach), as has been described by Kitt, could not be discovered in any case. The symptoms of a gastro-enteritis in the rennet and intestine, as had been observed in the previous year, were present in only one case. In this case the contents of the rennet and of the smaller intestine were of a blood-red color. Splenic tumors were absent, and no symptoms of disease could be discovered in the heart. As regards the paunch, there was found in it thickly coagulated efflorescences of a circular form, which were all in the process of healing up. The edges were flat, surrounded with new-formed epithelium; but in the middle they were of a brownish-red color; the epithelium on the rest of the paunch was more easily peeled off than under normal conditions. The mucous membrane beneath was deeply reddened. In places large circular spots were noticeable, on which there was no epithelium. The mucous membrane here appeared swollen and had a brownish-red color.

The essential point, however, seems to me to be the sudden sinking and death while the efflorescences are in process of healing up. In no case was it possible to find a fresh or even an eruption (pustule) in an advanced state. Everywhere they were open and in process of healing up.

In these cases the question is, How are the general disturbances or death to be accounted for? Clinically it makes the impression as if poisoning had taken place. The many theories which have been advanced heretofore for foot- and mouth-disease do not seem to me applicable here. The assumption of a destructive virus, however, is only a circumlocution, and proves nothing; just as little satisfactory is the theory that death is brought about by the production of poisonous matter on the part of the bodily infectious material which has found its way into the succum and sunguinem. The explanation of Willich seems more probable, namely, that the micro-organisms which are found in the intestines under normal conditions, and which are not pathological when the mucous membrane is healthy, develop a pathological effect from the mucous membrane of the intestines when it is inflamed by the foot- and mouth-disease.

I think that the fatal outcome in the cases where changes were present in the paunch alone might be explained as follows: Normally a certain fermentation of decay runs off into the paunch. It is then not impossible that poisons may be generated. When the foot- and mouth-disease is localized in the paunch, the thick protecting layer of epithelium may be broken through by the eruption of so many pustules, and the poisonous stuff would find its way between the fibres of the walls, and by way of the lymphatic ducts find its way into the circulation and be the occasion of the very grave consequences which are so prominent in the acute form of the disease. However, by means of experiment, we must first determine whether poisons of such a nature are really to be found in the normal contents of the paunch, or are in that merely of fasting animals. Besides, another question arises, Why this disease at one time localizes itself in the mucous membrane of the mouth and the skin of the hoofs, and at other times appears in the paunch also.

In conclusion, Prof. Schindelka makes a plea for governmental indemnification to cattle-owners whose source of support is so often endangered by these pests. He is also in favor of making the insurance of cattle compulsory.—PROF. H. SCHINDELKA in *Thierarztliches Centralblatt*, November 1, 1895.

REGULATIONS FOR THE PREVENTION AND SUPPRESSION OF FOOT- AND MOUTH-DISEASE.—In consequence of the extraordinary spread of the foot- and mouth-disease, the question of the prevention of the epizootic has become intense, and the need of greater preventive efforts is more and more apparent. The writer has attempted to hinder the spread of the epizootic by means of the disinfection which was recommended by John in 1894. Only in my case the disinfection was applied to the infected herds also, first to destroy the virus and to make the transmission of it impossible, and then to bring about a rapid and complete healing up. The result was a very satisfactory one.

A 1 per cent. solution of crude solutol was applied. This preparation was especially recommended on account of its cheapness and because no other preparation of cresol in such a dilution produces an equal effect. A piece of cloth was soaked in the solution, and the mouths of the infected animals, as well as those which were suspected, were thoroughly swabbed out; then the whole body was wiped off with a damp cloth and the udder and hoofs thoroughly washed off. Then, with a sprinkling-can, all objects which could have been tainted with the flying spittle, or through contact with the tail, were wet with the solution. This application was repeated the following day, but in the meantime the udders and legs of the animals were frequently washed with the solutol solution. As a matter of course, the clothing and especially the shoes of the attendants were subjected to a thorough cleansing.

Although at first our only purpose was to hinder the transmission of the virus, yet it was very soon apparent that the severity of the infection had been diminished. The production of milk in stables which averaged 300 litres per day sank for only two days to 230 to 250 litres, and the appetite of the animals, with careful feeding, did not fall off. The long suffering from hoof-trouble, which often appears as a consequence of the disease, was entirely avoided. The epidemic remained confined to separate localities where the owners could be induced to adopt these measures. Often enough there was opportunity to notice the differences in the appearance of the disease between the disinfected stables and those which had been neglected. They showed clearly the value of our efforts.—*Idem.*

THE CENTRAL ASSOCIATION (in Austria) FOR THE ERECTION OF PUBLIC SLAUGHTER-HOUSES.—At the session of the Central Association, October 16, 1896, an important report was made in reference to the veterinary sanitary police. It affected the question of public slaughter-houses, and was first brought up by the Veterinary Association of Mäluen. Herr Postolka, as chairman of the committee, read the report, which was adopted, with a few changes, on the second reading. The petition was then handed in to the Imperial Department of the Interior, with the hope that it would produce a prompt result.

The petition points out the fact that, in spite of meat-inspection, a great deal of a very doubtful character is still presented for sale, because the districts are so large and the inspection is often intrusted to general practitioners who cannot cover the whole district thoroughly, and through the press of their work have not time to keep pace with the rapidly developing science of bacteriology. As the best means of avoiding these evils, it prays the government to erect public slaughter-houses in the principal communities, and enact laws that all cattle shall be slaughtered in them. A veterinarian thoroughly practised in meat-inspection could be constantly on hand, and thus in the most economical manner the best results could be obtained.—*Idem.*

FRENCH.

TRANSLATED BY DR. ALEXANDER GLASS,
PHILADELPHIA, PA.

TREATMENT OF OBSTRUCTION OF THE ŒSOPHAGUS.—Dr. Esmieu recommends the following treatment, which is very simple as well as very efficacious in this malady. It consists of an injection under the skin of the chest of the following solution: Pilocarpine nitrate, 15 cgms.; eserine sulphate, 10 cgms.; distilled water, 5 grms.

A horse, thirteen years of age, and a calf of three months, had obstruction of the œsophagus, due to eating large pieces of potato. These two were completely cured by the hypodermic injection of this solution. In relation to this solution in the horse, Dr. Moussu said it was particularly interesting and useful, as the catheterization of the œsophagus in the horse presented difficulties which were not met with in the same operation in the cow.—*Journal de Médecine, etc.*

IODIDE OF STARCH.—This is spoken of very highly by Dr. Pecus as presenting all the advantages of iodoform, and being much cheaper in price, and not having the peculiar, unpleasant odor of that drug: Tincture of iodine, 4 parts; starch, 6 parts. The iodine is added slowly to the starch, rubbed up and kept in a close vessel to prevent escape of the iodine.—*Revue Veterinaire.*

TUBERCULOSIS IN THE DOG.—The subject affected was eight years of age, and for five months had suffered with acute enteritis. The animal was very much depressed and very thin, and Dr. Mouguet suspected that it was affected with tuberculosis. Friction by the hand revealed a hypertrophy of the liver and intense sensibility over that region. Auscultation did not indicate any pulmonary lesions, ascites followed, and the animal was destroyed. The liver was very much enlarged, and presented tubercular masses of different sizes, some as large as an apple, and the central masses containing quantities of purulent matter were broken down. The peritoneum and the pleura in the region of the diaphragm were covered with tubercular masses. The lungs were filled with similar tubercles, attaining in size a grain of hempseed. An examination under the microscope developed the bacteria of tubercles as being the cause of these lesions. The use of tuberculin produced a well-marked reaction in the dog.—*Revue Veterinaire.*

A PECULIARLY INTERESTING CASE OF INDIGESTION OF THE STOMACH (by Dr. Michelin).—This case was a pronounced one of indigestion of the stomach, and was caused by the animal drinking large quantities of water while very warm. A short time afterward the animal presented the following alarming symptoms: Entire loss of appetite; colic and nausea, followed by attempts at vomiting. The treatment consisted of alcoholic and camomilic injections, of ten centigrammes pilocarpine, and external frictions of terebene. In a short time the symptoms were much milder, but very soon returned with much greater force and producing at the same time profuse perspiration of the back and sides. The animal was given a drench containing acetate of ammonia, but the symptoms still continued acute and frequently violent. In half an hour large quantities of alimentary matter were ejected from the nose and had the peculiar odor of chyme. The author diagnosed rupture of the stomach, and expected the animal to die in a very short time. The next morning at five o'clock the animal walked twenty-five kilometres, and ate all of the food in the manger of the animal alongside of him, and in two days afterward was completely cured.

This combination rather conflicts with numerous other authors, showing that it is possible to have vomiting in the horse without rupture of the stomach.—*Recueil de Médecine Veterinaire.*

SELECTIONS.

An old and wornout horse, turned out to die, wandered along the fair banks of a babbling brook—he was so tired. He slowly walked, now near, now farther from the silvered music of the stream. The crimson and golden luxuriance of nature moved pathetically, and tear-drops of dew wet the ground, as a band of passing elves espied the faltering footsteps, and as the glories of a Western sky shone radiantly about the scene, sang this lullaby:

Blow, gentle breezes, blow,
Flow, peaceful waters, flow,
The burning heat of noon is past
And falls the evening shadows fast.
Blow, gentle breezes, blow.

Flow, peaceful waters, flow,
And bend ye willows low;
List to the song from off the shore
Above the distant waters roar.
Blow, gentle breezes, blow.

Flow, peaceful waters, flow,
As fall those footsteps slow;
Glide to the all-surrounding deep,
Rocked in its buoyant grandeur sleep.
Flow, peaceful waters, flow.

Blow, gentle breezes, blow,
Blow o'er the gathering woe;
Keen grow wounds on expectant years,
A crimson tide o'er banished tears.
Blow, gentle breezes, blow.

Flow, peaceful waters, flow,
Alike for friend or foe,
(What has been dimmed fancy's green,
Clear in a second-sight is seen.)
Flow, peaceful waters, flow.

Blow, gentle breezes, blow,
And o'er the dumb heart throw
A balm from off thy billowed crest,
Ere lay those weary limbs at rest.
Blow, gentle breezes, blow.

Blow, gentle breezes, blow,
Flow, peaceful waters, flow,
Humility can add but grace;
Thou earn, thou win, a finished race.
Blow, gentle breezes, blow.

F. B. BRUBAKER, M.D.

PROVOST C. C. HARRISON, of the University of Pennsylvania, in referring to the School of Veterinary Medicine in his opening address, October 1st, said:

"I shall ask the Trustees to take up the question of administering the Veterinary Department upon a greatly enlarged plan, suitable to the great importance of your branch of science. Agriculture is the foundation industry of the country. More than one-half of our population depends directly upon it, and the whole population indirectly. The prosperity of the farmer is the index and foundation of general prosperity. Agriculture depends in large measure on animal husbandry. Most of the highest priced and most concentrated products of the farm are animals or their products. The domestic animals of the United States represent investments of more than $2,500,000,000. Animals have their diseases as men have, and some plagues have swept them away by thousands, and have brought communities to the verge of bankruptcy. Many of their diseases are communicable to human beings, and are conveyed by contact or through the meat and milk. Hence the subject of veterinary science is of the utmost importance, both from the standpoint of public economy and of public health. It is the office of the Veterinary School to prepare men to take a leading part in the development of the productive resources of the country by improving and protecting domestic animals, and to fill important positions as guardians of the public health. It is estimated that the average efficiency of our farm-animals is not more than one-half of that of which it is capable under improved conditions, and as a result of more intelligent husbandry. This indicates the need of comparative pathological study and of practical zoötechnics which the Veterinary Department undertakes to give, and to do this thoroughly will require a more complete equipment than we now possess. I am sure that the importance of the subject, the zeal and industry of our Faculty and the prospect of sending perfectly equipped veterinarians in the world will justify the serious expense which will be involved in the execution of our plans.

"Meanwhile, let us here and all of us, each in his station, resolve that this shall be a faithful year to the utmost of our strength and talents, and may God speed us all in the several works which we this day begin."

At the conclusion of the Provost's address announcements were made by Dean Marshall for the Medical School, and by Dean Kirk for the School of Dentistry. Provost Harrison then introduced to the students Dr. Leonard Pearson, Professor of the Theory and Practice of Veterinary Medicine, as the new Dean of the Veterinary Department, stating that the additional duties imposed upon Dr. Marshall by his election to the Professorship of Chemistry made the change necessary. Dr. Pearson was received by the students with a round of applause. He made the announcements for his department.

THE WILD TAMARIND.—A curious plant is the wild tamarind, or jumbai plant (*Leucœna glauca*), of the river sides and waste places of tropical America; and very strange are its effects upon the non-ruminant animals that feed upon its young shoots, leaves, pods, and seeds, as described in the British Association by Mr. D. Morris, of Kew Gardens. It causes the horses to lose the hair from their manes and tails, has a similar effect upon mules and donkeys, and reduces pigs to complete nakedness. Horses are said to recover when fed exclusively on corn and grass, but the new hair is of different color and texture from the old, so that the animal is never quite the same as it was. One instance is cited in which the animal lost its hoofs too, and had to be kept in slings till they grew again and hardened. Ruminant animals are not thus affected, and the growth of the plant is actually encouraged in the Bahamas as a fodder plant for cattle, sheep, and goats. The difference in its action upon ruminants and non-ruminants is probably due to changes effected upon it in the chewing of the cud.—*Popular Science Monthly.*

An English farmer relieves choking by a stick four feet long and half an inch thick at the large end, with prongs, like fork-tines, about one inch long, at the small end. The stick should be short and smooth; wind the prongs with yarn until well covered, and sew over and through this a piece of cotton cloth, making a ball some inches in diameter, securely fastened to the small end of the stick; grease the ball well with lard, insert it in the animal's throat, and push it down the length of the stick if need be, or until the substance is forced into the stomach.

REPORTS OF CASES.

RECORD OF A FEW CASES OF ABDOMINAL SURGERY.[1]

By E. Mayhew Michener, V.M.D.,
NORTH WALES, PA.

Case I. *Difficult parturition in a sow, with operation.*—Subject, Berkshire sow, reported by owner to have been in labor forty-eight hours; no delivery. On examination found one pig presenting; anterior presentation. After considerable work delivered this one pig. After waiting four hours for more, and finding there was no progress and sow growing weaker, I decided upon Cæsarean section (gastro-hysterotomy). I secured the sow on the left side and scrubbed the right side thoroughly with soap and water; clipped the bristles closely over about a square foot of surface surrounding the line of incision, then washed with a 10 per cent. solution of creolin, and the surface wiped dry with a clean towel. I incised the skin about six inches from a point two inches in front of extreme angle of the ilium downward and forward, in line with the fibres of the small oblique muscle of the abdomen, which was incised for nearly the same distance, however not as far anteriorly and downward as was the incision through the skin. The transverse fascia was then incised to a like extent and the peritoneum lifted up by rat-tooth forceps, and an opening made large enough to admit the finger, which was then used as a guide for the probe-pointed bistoury, which was used to enlarge the opening in the peritoneum enough to admit the hand. The uterus, containing the young, was easily secured, and the part of the horn containing the pig was brought out through the opening and found very near the divergence of the two horns. An incision was made at a point as near as possible to the body of the uterus and the pig extracted by means of a strong tenaculum placed in the snout. Care was taken that the fluids escaping with the fœtus did not touch the wound in the abdomen, nor fall into the abdominal cavity. Two other pigs, which were found to be in the distant horn of the uterus, were removed through the same opening. All were dead. The placentæ were easily removed, and all fluids were pressed out.

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[1] Presented for consideration at the semi-annual meeting of the Pennsylvania State Veterinary Medical Association, Franklin, Pa., September, 1897.

The wound in the uterus was washed with warm water containing creolin (one part to twenty), and at once stitched up with interrupted suture of waxed linen thread. Care was taken to invert the edges of the wound so that the peritoneal surface of the uterus came into close contact throughout the length of the incision. In placing the stitches the needle was carried through the peritoneal and muscular coats of the uterus, but *not* through the mucous-membrane coat. The stitches were placed one-half inch apart. The uterus was returned, and the wound in the abdominal wall closed by two rows of stitches; the first, continuous suture of the peritoneum, the second consisted of two stout wires passed through the skin, one at the upper and the other at the lower third of the incision through the skin. Each wire was then wrapped in the figure-eight fashion with a stout linen suture, thus bringing the cut edges closely together. The space between and beyond the wires was sutured firmly with interrupted sutures, a small opening being left at the lowest point of the wound for drainage. The wound was then wet with a 50 per cent. creolin solution, and the animal released and turned into the orchard. It was very much exhausted and somewhat lame behind on the side of the incision. The weather being very warm, the animal was drenched frequently with water from a pump, which she seemed to enjoy very much. Her appetite was very poor for the first three days, then rapidly improved, and in eight days apparently all right. In one month she was rapidly gaining flesh.

CASE II. *Difficult parturition in a sow.*—Chester-white sow; in labor two days, during which time four pigs were delivered by much assistance being given. The sow then seemed to be entirely undisturbed by labor pains for about ten hours, and then began to labor feebly and without any result. Operation decided upon and method described in Case I. followed. Nothing different from Case I., except I found a considerable quantity of fluid in the abdominal cavity, which poured out on incising the peritoneum; on exposure to the air the liquid turned from transparent to almost white, resembling heated albumin, and from very liquid to the consistency of jelly. In removing the pigs, which were four, I found it necessary to make an incision in each side of the uterus. Wounds in uterus and abdominal wall closed as before described. Animal very much depressed, and little appetite for nearly a week, then began to improve slowly, and in three weeks was gaining flesh.

CASE III. *Operative interference in bitch in difficult parturition.*—Fox terrier bitch; in labor fifteen hours, during which time four puppies (two alive and two dead) were born. The fifth pup I was unable to secure, it not coming back within reach. Secured the animal, cleansed the abdomen with soap and water, disinfected with creolin solution; made an incision on the median line from just anterior of the pelvis to near the umbilicus. The uterus was drawn through the wound and found to contain only one pup, which was well back in the body of the uterus. Incised the right horn and extracted the pup alive. Wound in the uterus sutured and wound in the abdomen closed by close interrupted sutures, including both skin and recti muscles. Animal slightly depressed after operation, and the temperature, which was before 102°, rose to 104½° in less than two hours, but fell to 101° four hours later. Bitch drank some milk and raw eggs three hours after operation, and the next day the appetite was good. Pup alive and nursing, but was killed by accident when four days old. This animal made a complete recovery, and showed throughout less disturbance than I have frequently witnessed following ovariotomy.

CASE IV. *Operation and delivery of puppies in difficult parturition.*—French poodle bitch; in labor three days, during which time three pups were delivered. I found the animal very weak with a temperature of 105°; labor pains weak. I succeeded, by hard work, in extracting one more pup badly decomposed. As, from appearances, no more were likely to be secured I informed the owner that I possibly might save the bitch's life by an operation, as a last resort. He consented, and I proceeded as with the fox terrier, and obtained eight more dead and partly decomposed young. The bitch was very weak and threatened collapse after finishing the operation. I placed her in a warm room, and gave small repeated doses of brandy and milk. She seemed to gain slowly until about forty-eight hours after the operation, then failed rapidly and died on the third day. The autopsy showed very slight peritonitis, but marked inflammation of the womb. The incisions in the womb had become fastened quite tightly together with lymph-bands, making an almost perfect closure.

CASE V. *Laceration of intestines after castration in a boar; recovery.*—I wish to describe here an accident which occurred during an operation upon a ridgeling boar. I have frequently performed this operation, almost always with success, on boars of ages varying from a few months to three years. The method used is to secure completely on an inclined plane, the head placed downward. The incision is made as in the operation described on sows. The testicle, or sometimes both, have no certain location, varying from the lumbar region to the internal inguinal ring; generally, however, it is found well down toward the internal ring.

The accident which I wish to describe consisted of a transverse tear in the small intestines, severing the gut quite one-half its circumference. It was caused by using too great force in attempting to return the intestines through the opening in the abdominal wall, through which they had been forced by the violent struggles of the animal.

I informed the owner, who was present, that most likely the accident would prove fatal, but repaired the injury to the gut by turning the torn edges inward and suturing with silk thread and continuous suture, going only through the peritoneal coating of the bowel. Upon inquiry several weeks later, I was not a little surprised and pleased to learn that the pig never showed the least incovenience from the combined operations of removing the testicle from the abdomen, another from the scrotum, and suturing the bowel.

FOUR INTERESTING CASES AT CLOVERDELL STOCK FARM.[1]

By J. Curtis Michener, V.S.,
COLMAR, PA.

Case I. *Acute dyspnœa in a colt.*—During the month of January the past season's colts were having strangles. They were under the treatment of Dr. Seaman, the resident veterinarian. During the day and evening of the 29th, one of the sucking colts was noticed to be discharging very freely, though otherwise quite well. As night came on we had a very piercing, cold wind, the worst of the season; the stable had many large cracks, being almost as cold as out of doors. The watchman, at midnight, found the colt roaring until it could be heard above the wind several yards away. The doctor, on being called, sent for me in great haste, with instructions to bring along my tracheotomy tube. I found the colt very cold, mouth wide open, staggering about, shaking its head, and making the same kind of a noise that a horse makes if you hold his nostrils shut for several minutes. The doctor demanded that I operate without a moment's delay, or it would be too late. I told him I would not do it either then or there. We first carried the colt into a warm stable by the engine-room, wrapped him in warm blankets, put his nose over steaming water, and fomented the nose and throat with warm water.

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[1] Presented for consideration at the semi-annual meeting of the Pennsylvania State Veterinary Medical Association, Franklin, Pa., September, 1897.

The doctor, becoming more nervous every minute, said, if I would not operate, he would go for my son, Mayhew. I told him to not be foolish, as the colt would be relieved or die before he could be summoned; when, lo and behold! the colt gave a spasmodic snort, and blew out great plugs of hard pus, looked around a moment in relieved amazement, then walked over to its dam, and took a hearty suck. It was entirely relieved, and went right on making a rapid and complete recovery. We called it a case of being frozen up.

CASE II. *Paraphimosis in a stallion.*—On April 1st I was called to attend the celebrated old stallion "Red Wilkes," and found him with the end of the penis swollen to the size of a man's head, strangulated, and hourly growing worse; a case of paraphimosis. It gave the horse much uneasiness; he stamped about, switched his tail, and his countenance bespoke much anxiety. First, I made six punctures, from which serum dropped freely. Next, I fomented with warm water for several minutes, when the stricture relaxed so far as to allow the hand to be passed into the sheath, when the cause of the trouble was found. Whenever the plank flooring became wet, it was sprinkled with sharp white sand to prevent slipping. A large quantity of this had adhered to the penis and been carried back into the sheath, starting a violent irritation.

After a thorough cleansing and anointing with cosmoline, the penis was readily returned, but would soon drop out about eight inches. Plenty of exercise out in the cool air soon caused the parts to rapidly resume their normal size and position. In three days he was all right and serving mares.

CASE III. *Dislocation of the coxo-femoral articulation; reduction.*—This occurred on April 22d. An old mare, running with others at pasture, was found holding a hind-foot up about eighteen inches, and turned inward on a line with the other foot, keeping in constant motion, evincing great pain. When I arrived, she was down, resting well. I examined the foot for injury, and the bones for fracture, but was unable to make a diagnosis. I drove her up, when the case became very plain. She held the foot up forward and under the belly. It could not be forced to the ground, and the head of the femur could be plainly felt above and behind the acetabulum. I placed a strap around the pastern with a rope attached in the hands of four men. I had one man hold her by the bit and mane, and another one to brace up the opposite hip, then directed the men at the rope to pull strong and steady forward and outward, while I clasped the hip with one hand and pushed the protruding bone with the palm of the other. It went to its place without difficulty with a snap plainly heard. She put her foot down and walked off without lameness. The next day she was trotting about as though nothing had happened.

CASE IV. *Ulceration and perforation of the intestine from eating foreign products.*—August 9th, a sucking colt was found to be drooping and weak. When called I found it in a state of collapse, with abdomen swollen and tender, but nothing like colicky pains had been noticed. It died in four hours without a struggle. On opening the peritoneal cavity, a quantity of bloody serum, a little fecal matter, and about twelve worms, ascarides (*Ascaris magalocephala*) made their escape. There was general peritoneal inflammation. I found the floating end of the cæcum mortified and having a ragged opening about an inch in diameter, through which the worms and fecal matter had made their escape. Just inside the rent was found a hard, tough ball, which was composed of hard, woody threads. I examined the pasture and found the colt had reached between the slats of tree-frames and stripped the bark from off young maples. For the sake of being fashionable, I called it a case of appendicitis.

ULCERATION OF THE STOMACH OF A HORSE, AND CHRONIC GLANDERS OF A MULE.

By W. E. A. Wyman, V.S.,
CLEMSON AGRICULTURAL AND MECHANICAL COLLEGE, SOUTH CAROLINA.

RECENTLY a horse was brought to the free clinic, supposed to be suffering with colic. The owner informed the writer that the horse had colic frequently, that his bowels were at times "loose," then again constipated. Whenever drinking water, especially on an empty stomach, the horse would drink a little and then with an anxious expression, look at the flank. When presented for treatment, the horse was sick for two hours, and had received no medical attention. Examination of the animal revealed the following: General emaciation; mucous membranes cyanotic; intense dyspnœa; pulse hardly perceptible, and above 120; epigastric region very full; animal covered with cold, clammy sweat; kneels down occasionally for a second or two frequent belching and vomiting of a sour-smelling mass streaked with blood. Diagnosis of rupture of the stomach was made. The animal died about fifteen minutes after being brought to the clinic. Post-mortem examination made within twenty minutes after death showed a rent of about one inch near the middle of the great curvature of the stomach. On opening the stomach, an ulcerated condition extending across the whole stomach in a zigzag fashion, following apparently the division between the œsophageal and pyloric portion of that organ, was visible. The ulcer was covered with a black adhering crust, reminding one forcibly of those seen in chronic hog-cholera. Another ulcer, about one and one-half inches in length and one-half inch wide, was found on the pyloric sphincter muscle. Throughout the whole intestinal tract, especially in the small intestines, strictures varying in length from one to five inches were noticeable.

While examining a number of horses and mules for the State—supposed to be suffering with glanders—a mule with chronic glanders, ulceration and perforation of the nasal mucous membrane and septum nasi, was met with. Post-mortem showed lungs with tubercles in all stages.

Goat's milk is not as digestible as cow's milk, and forms in the stomach a much denser and harder curd.

Moving microbes are now photographed by the micromotoscope, and their actions and progress studied under conditions that will shed much light on true pathology.

Antiseptic powder: iodoform, salol, bismuth subnitrate, charcoal, cinchona, benzoin, equal parts.

Antiseptic varnish: powdered lac, 900 grains; balsam of tolu, 75 grains; thymol, 22 grains; alcohol, 750 grains; ordinary ether, 1500 grains; filter.

The *Bacteriological Review* quotes Dr. Wilcox as saying of strophanthus that it is the choice of drugs in heart difficulties. 1. In all cases in which we wish to establish compensation. 2. In all cases of arterial degeneration in which a remedy which causes more energetic cardiac contraction is required. 3. In all cases of cardiac diuresis where diuresis is necessary. 4. In all cases of weak or irritable heart. 5. In all cases of cardiac disease of very young or of old age.

EDITORIAL.

BE UP AND DOING.

This will be a winter's season of important meetings all over the country, and we wish to urge upon every veterinarian to attend them as far as possible. From the meeting of the American Public Health Association in Philadelphia; an important meeting of the Massachusetts Veterinary Association, to be addressed by Prof. Theobald Smith on "The Restriction of Tuberculosis among Dairy-cattle" in October; in November, a special meeting of the Woman's Health Protective Association of Philadelphia, and kindred organizations to take up the subject of better meat-inspection and the abolition of private slaughter-houses. Equally important meetings in New York City and Washington on similar subjects are in contemplation, all of which will be fruitful of good for the veterinary profession in a just proportion corelative with the interest they take in them. Let every one keep in touch with these movements, and the winter's work will be profitable for our profession.

ALWAYS GIVE CREDIT WHERE DUE.

The *Catechism on Tuberculosis* issued by the Secretary of the New York State Board of Health, and reproduced in full in the *American Cultivator and Country Gentleman*, appears to be a complete reproduction of Circular No. 4 of the State Live-stock Sanitary Board of Pennsylvania, without any credit being given the latter board for the same. We have nothing but praise for its contents and advice, and would wish for it the utmost publicity all over the land; it is educational, instructive, impartial, and fair in all its replies and deductions; but when put out by boards of sister States, it would seem only the most meagre justice to give credit to its original production and source from which it emanated, and not impose it upon periodicals of the Empire State as an original production of the Empire State Board of Health.

THE SAME THING FROM DIFFERENT POINTS OF VIEW.

As it appeared in the August Journal: "We veterinarians will bear in mind that Senate Bill No. 1063 still remains on the calendar of that body, awaiting a favorable opportunity to be called up for passage. This bill strikes right at the root of all original investigations of the Bureau of Animal Industry, and would likely be followed by similar efforts in many States, and thus would halt all progress in human and comparative science."

As reproduced in the (September 4th) *Spirit of the Times* without due credit being given: "Veterinarians should not forget that Senate Bill No. 1063 still remains on the calendar of that body. As soon as a favorable opportunity presents itself the bill will be called up for passage. This bill strikes right at the root of all original investigations in this subject, and would, in all probability, be followed by similar efforts in many States, which, if successful, would put an end to all progress in human and comparative medical science, and should be strenuously opposed."

As it appeared in the October number of the *American Veterinary Review*: "ANTI-VIVISECTION BILL.—Veterinarians should not forget that Senate Bill No. 1063 still remains on the calendar of that body. As soon as a favorable opportunity presents itself the bill will be called up for passage. This bill strikes right at the root of all original investigations in this subject, and would, in all probability, be followed by similar efforts in many States which if successful would put an end to all progress in human and comparative science and should be strenuously opposed."—*New York Spirit of the Times.*

The usually very alert eye of the junior editor of the *Review* could hardly have been turned on the recent issues of the JOURNAL as sharply as common.—ED.

THE experience of meat-inspector Schrieber, of Philadelphia, in finding hung up on a stall of a meat-dealer the diseased liver of a horse that had died some days before from causes that would have led to illness on the part of anyone eating the same, should be a lesson to all municipalities of the need of meat-inspection and the wisdom of establishing central abattoirs where all animals should be slaughtered that are intended for consumption as food.

NECROLOGY.

DR. EDWARD LOOMES, of New York City, died early in October of acute gastric trouble, and his remains were laid at rest in Woodlawn Cemetery. Dr. Loomes was a highly respected practitioner as well as a very successful one. He was a charter member of the New York County Veterinary Medical Association. He had been appointed veterinarian for the National Horse Show of America, which position he had successfully filled in the past.

CONTROL WORK.

Belgium. The Director-General of Agriculture has issued an order that all bovines over three months old must be marked with a tag on the ear, in order that they may better control tuberculosis among these animals.

South Africa. The Government of Cape Colony has issued directions for the inoculation against rinderpest either with pure bile, Dr. Koch's method, or with glycerinated bile, according to Dr. Edington's method. We clip the following from our esteemed contemporary, the *Agricultural Journal*, of Cape Colony:

PROF. KOCH'S METHOD: Experience has shown that certain galls, although physically correct in character and appearance, do communicate rinderpest to a certain number of cattle when they are inoculated with it; it follows, therefore, that the gall which will thus communicate the disease by inoculation would also be capable of communicating infection in the ordinary way. Hence the necessity of exercising extreme care when inoculating a clean herd of cattle, and the following directions should be attended to carefully:

1. In selecting bile, none but that which shows a deep green color with a white froth and free from sediment should be accepted, and, where practicable, several different galls should be mixed together. This modifies and equalizes the strength and safety of the gall. The selected green gall should be kept separately for at least twelve hours. If any gall smells or changes color after keeping, it must be rejected. The good galls are then mixed together before being sent out.

2. Gall is considered more effective, and gives the best results when obtained from a sick beast on the tenth day after artificial inoculation, or the fourth or fifth day after the visible symptoms have become apparent in natural infections. Earlier or later gall should be avoided, and gall taken from an animal which has died, unless the duration of the disease is known, is not to be recommended.

3. The gall should be used on the second day after being drawn, if practicable, but, if kept cool, either by placing the bottles in ice-

chests or wrapping them in wet cloths and placing them in a cool draught, it may be kept fresh and safe up to the third or even the fourth day.

4. Both before and after the gall is placed in bottles they should be disinfected, and also the cloths that are wrapped around them before being sent to the inoculator.

5. The inoculator should not extract the gall from the affected animal himself, nor come near to the infected cattle; but, if necessary for him to do so, he should change his clothes and boots and disinfect his hands well before commencing to inoculate; also see that everyone handling the cattle has been thoroughly disinfected.

6. As it is never certain when inoculating within an infected district that the herd is completely free from infection, the needle of the syringe should be cleaned and disinfected in a 5 per cent. solution of carbolic acid or alcohol after each inoculation, and the skin of the animal at the seat of the inoculation should be cleaned and disinfected, both before and after the operation with Jeye's fluid or other similar disinfecting solution.

7. The small cup or vessel containing the gall, from which the syringe is repeatedly filled, should be kept covered with a small piece of linen or calico, wrung out in the disinfecting solution, and the operator's hands and syringe should be frequently disinfected.

8. As infection may be in any herd unknown to the operator he should disinfect his hands and clothes well after inoculating each herd, and, for the same reason, it is not desirable to have the same boys to assist in catching different herds of cattle.

DUNCAN HUTCHESON,
Colonial Veterinary Surgeon.

DR. EDINGTON'S METHOD: 1. The bile to be used must be taken from an animal immediately after death at full period of disease, or from one which is killed in the last stage of collapse.

2. Any biles can be used, except those which have become putrid and thin. Light yellow-colored biles should also be discarded.

3. All the biles taken on one day are to be dealt with separately, and mixed with glycerin in the proportion of two parts of bile to one part of glycerin. All the glycerinated biles are thereafter to be mixed together and labelled, showing the date of adding the glycerin.

4. No bile should be used for inoculation until eight days after having been mixed with glycerin.

5. The bile mixture should be kept at ordinary room-temperature and not exposed to freezing.

6. The bile, immediately previous to being used for inoculation, must be shaken up, to insure that any precipitate shall be uniformly distributed through it.

7. The dose for inoculation for cattle of average weight is 20 cubic centimetres, which must be injected into the brisket or dewlap. For very young calves 15 centimetres suffice, but for old and heavy cattle 25 centimetres may be given.

8. The second inoculation is made on the tenth day subsequently, and should consist of 0.1 cubic centimetres of virulent blood mixed or suspended in 5 centimetres of water. A convenient method of measurement consists in adding half of a fluidounce of blood to a quart bottle (26 ounces) of sterile water. Of such a mixture of blood and water 5 cubic centimetres are used for injection into the dewlap.

Note.—The virulent blood should be taken from a characteristic case of the disease, and preferably at the stage when the symptoms are beginning to be evident.

After the second inoculation is completed, one may look for the occurrence of some cases of sickness among the animals between the eighth and tenth day after blood-inoculation, and, if any such occur, they should be isolated from the herd.

If, however, after fourteen days no sickness has shown itself, the farmer may rest satisfied that no more will sicken.

ALEXANDER EDINGTON, M.D.,
Director of the Bacteriological Institute.

New York.—There are sixty milk-inspectors throughout this Commonwealth. The chief adulteration is by watering and skimming; 600 cases in 1895, 400 in 1896, and 400 in 1897 up to date is the record of cases in violation of the laws. Texas-fever, rabies, and anthrax have come under the notice of the Commissioner of Agriculture during the year; Texas-fever from cattle with ticks from the quarantine district. The losses this year from these diseases have been reduced to a minimum.

Drs. Leonard Pearson, M. E. Conard, James A. Waugh, J. B. Irons, and W. Horace Hoskins are among the list of lecturers before the Farmers' Institute in Pennsylvania during the sessions of 1897 and 1898.

LEGISLATION.

California.—An act to regulate the practice of veterinary medicine in this State provides for the creation of an examining board, to consist of five duly qualified veterinarians, who are compensated out of the fees and forfeits which may accrue from the applicants for examination, but in no case is such remuneration to be taken from the State Treasury, and all surplus over and above these expenses is turned over to the State Treasurer. The fee for a graduate with a diploma from a recognized school is five dollars, and that of a non-graduate is ten dollars, which is forfeited should the examination not prove satisfactory to the board; non-graduates, however, not to be examined after December, 1893. The meetings of the board are to take place every six months in San Francisco and Los Angeles alternately. All licenses must be displayed prominently in the offices of practitioners, and a true copy filed in the County Court. Should this not be done within six months after the recepit of the license the offender is deprived of his license, unless he pays the sum of twenty-five dollars for the offense. Any infringement of this law is punishable by a heavy fine or imprisonment or both.

An ordinance has been issued by the County of Sacramento regulating the health of domestic animals and the sanitary condition of dairies, slaughter-houses, markets, and other places from which the food-supply is distributed. This ordinance provides that any animal having a contagious disease is to be reported to the veterinary inspector, and, after being notified by the inspector, the animal to be put to death by its owner. Any meat which has become putrid or unfit for use in any way shall not be sold or given away; this also applies to the milk from diseased cattle. A thorough, sanitary cleanliness is to be maintained in the markets, slaughter-houses, or any place where milk and meat for consumption are kept. A violation of this ordinance is deemed a misdemeanor, and is punishable by fine or imprisonment or both.

An ordinance creating the office of veterinary inspector has also been adopted by the same county. He is empowered to investigate reports of contagious or infectious diseases in animals, and to order the animals destroyed if necessary; also to enforce thorough sanitary conditions in such places as are used for the storage of meat- and milk-supplies. He must submit to the board of supervisors a detailed report of the examinations and tests made by him. He is to be supplied with an assistant or deputy, and such materials for carrying out the duties of his office as the exigencies of the situation demand.

District of Columbia.—The milk regulations for this district are very rigid, and were incorporated under an act to regulate the sale of milk in the District of Columbia, approved in 1895. This act provides that no dairy farms shall be maintained without a permit from the health officer of the district, who shall, after receiving application in due form, thoroughly inspect the premises before issuing the permit, which may be suspended at any time when danger to health is imminent from the exposure of the animals to any infectious or contagious disease. Any person desiring to send milk into the district for sale and consumption must obtain a permit for the same, and the application must be accompanied by a sworn statement of the physical condition of the cattle supplying the milk. All milk is to be tested by the Babcock method. Strict cleanliness, good drainage, ventilation, and water-supply are insisted on by the health officer, and enforced. Any milk from which any cream has been taken must be labelled "skim-milk," and sold as such. All milk-wagons must have on them the owner's name, the number of the permit, and the location of the dairy from which the milk is supplied. All analyses must be in the presence of two witnesses, one of whom may be the owner of the milk. Violations are punishable by fine or imprisonment, or both, and in case of a second offense the permit is withdrawn for six mouths.

AMONG THE COLLEGES.

ONTARIO VETERINARY COLLEGE, LIMITED.

Dr. J. A. Amyot will this year instruct the students in animal physiology in place of Dr. G. A. Peters of last year. Dr. D. K. Smith, who is one of the '97 graduates from this college, will occupy the chair of practical microscopy. The first and second prizes have each been reduced $5 in value. The college has this year affiliated with the Toronto University, and will probably change its course of instruction and length of term at the commencement of its next session of 1898 and 1899.

The college is said to have over one hundred students in its classes for 1897 and 1898; some seventeen of the United States are represented.

SOCIETY PROCEEDINGS.

MASSACHUSETTS VETERINARY ASSOCIATION.

THE monthly meeting was held June 16th at the Quarantine Station, Gallop's Island, which was open to the Association through the courtesy of the Board of Health of the city of Boston. The members left Lincoln Wharf on board of a fine tug, which was placed at their disposal by N. Ward & Co. After an inspection of the different departments, President Winchester called the meeting to order in the laboratory. Members present: Drs. Beckett, Blackwood, Bunker, Burr, Emerson, Frothingham, Hamilton, Howard, Lobour, Lewis, Osgood, Parker, Penniman, Peters, Peterson, Pierce, McLaughlin, Rodgers, Sheldon, Williams, Winchester, Stickney. The Association had as guests: Dr. Monell, of Lawrence; Dr. A. S. Lamb, of Woburn; Mr. Fred. A. Weil, of the Lawrence *American*; and Mr. Andrew Ward.

Dr. Bunker moved that the meeting be considered the regular monthly meeting, and that when we adjourn we adjourn until September.

Dr. Frothingham read a paper on the "Method of Procedure in Preparing Antitoxin," which was very instructive.

Dr. Burr explained the condition of each horse in the stable that is used for serum, and its condition before and after.

The Association then took the tug to Pemberton; from there they took the electric railway to Strawberry Hill, where a shore dinner was served at the Waveland House; after a smoke-talk they were taken in barges through the town of Hull, back to the tug, when a few returned to Boston by the regular boat, and the rest took a moonlight sail out to sea, returning to Boston about 10.30 P.M.

H. S. LEWIS,
Secretary.

TENNESSEE VETERINARY MEDICAL ASSOCIATION.

THE second annual meeting was held at the Tulane Hotel, Nashville, Tenn., on Monday, September 6th. In the absence of the President, the first Vice-President, Dr. Joseph M. Good, called the meeting to order. The minutes of the last meeting were read and approved. The Committee on Permanent Organization reported that they had drawn up a Constitution and By-laws for the approval of the Association. The Secretary was then instructed to read the proposed Constitution and By-laws, which was done, and after some modifications and alterations they were adopted.

The regular order of business was then taken up. On roll-call the following members answered to their names: Dr. Good, Chattanooga; Dr. White, Chapel Hill; Dr. Rauch, Memphis; and Drs. Hagyard, Rayen, Scott, and Plaskett, of Nashville. Dr. Blackman, of Rome, Ga., but formerly of Tennessee, was also present. It was moved and carried that Dr. Blackman be elected an active member of the Association.

The next business being the election of officers, the Secretary read a letter of resignation from Dr. Scheibler, President of the Association, which after some discussion was accepted. Dr. Good was nominated for President and unanimously elected. This leaving the first vice-presidency vacant, Dr.

White was elected first Vice-President of the Association. These gentlemen, in neat speeches, thanked the members of the Association for the honor they had conferred on them, and promised to use their best endeavors to advance the interests of the Association. It was moved and carried that 300 copies of the Constitution and By-laws be printed, and that a number of copies be sent to each member throughout the State.

Dr. Rayen, Chairman of the Local Committee, moved that every member of the State Association should assist the Local Committee in the entertainment of the U. S. V. M. A., which was to convene in Nashville the next day. This was seconded and carried. The time and place of the next meeting was left to the Executive Committee, and, there being no other business, the meeting then adjourned.

JOSEPH PLASKETT, D.V.S.,
Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THE September meeting was called to order by Dr. James B. Rayner, Tuesday evening, the 13th, at 8.30 o'clock, in Room No. 1, third floor, northwest corner Broad and Filbert Streets, with the following members of the profession present: W. H. Hoskins, Charles Lintz, James T. McAnulty, James B. Rayner, W. L. Rhoads, Thomas B. Rayner, William H. Ridge, C. J. Marshall; also students from the Veterinary Department of the University of Pennsylvania. Upon the recommendation of the Board of Trustees, Dr. Ridge was unanimously reinstated as an active member.

Dr. James T. McAnulty now gave a very comprehensive talk upon what the various schools of farriery intend doing throughout the coming winter sessions, outlining, first, the course of instruction to be given, then the form of examination, and a number of questions as an example of what would be asked, the code of ethics which all must sign upon their graduation, and then he portrayed the undoubted advantages that must necessarily accrue to the workers of the craft.

He asked for the assistance and coöperation of the veterinary profession in the good work of the master horseshoers. The Association extended to the master horseshoers, through Dr. McAnulty, its fraternal sympathies, encouragement, and support.

We then heard from those who had the good fortune to be at the national meeting at Nashville. They all felt that the ride was remarkable for dirt, yet they to a man agreed that it was the only low-down, mean part of the trip, as they were met at every turn with the renowned, open-armed hospitality often talked of, but seen in its most generous and perfect form in our own Southern States. The honor of being elected Eastern Vice-President having fallen upon one of our members, he was now called on to tell of his experiences and emotions. In conclusion, he promised, while enacting his official duties, to be at all times sure of his premises before proceeding, thus opening no possible chance for grievance from any brother.

It was now moved and seconded that Dr. Ridge prepare a paper for our October meeting.

Dr. James B. Rayner admonished the members to be more prompt in attendance and time of arrival, that the meetings might always be called to order at 8 o'clock sharp, thus giving time to carry out the programme before any had to leave for home.

Dr. Ridge then reported several cases of pyæmia in cattle, caused by scratches from cut briers and stagnant water through which they passed.

Meeting then adjourned to meet October 12th. This will be the annual meeting. Officers will be elected and some Association news of interest to members will be made known.

THE October meeting of the Association was called to order by Dr. Thomas B. Rayner, who took the chair, upon motion of Dr. Hoskins, in the absence of President James B. Rayner.

The following members of the profession were present: Drs. F. S. Allen, Charles M. Cullen, Charles T. Goentner, Walter L. Hart, W. Horace Hoskins, W. S. Kooker, Charles Lintz, Leonard Pearson, W. L. Rhoads, Thomas B. Rayner, H. A. Christman, William H. Ridge, C. J. Marshall, John W. Adams, J. C. Michener, Robert Gladfelter, J. C. Foelker, S. J. J. Harger, J. Beatty, and E. M. Ranck; also Messrs. P. K. Jones, J. E. Spindler, A. E. Cunningham, S. L. Blount, L. D. Horner, C. Megary, J. J. Repp, H. Hoopes, and others whose names we did not get.

Dr. J. C. Michener, of Colmar, read a paper on the "Value of Exercise." He gave one of the most forceful papers, written upon independent, free lines of thought and experience, regardless of text-books and like authority, that it has been the favor of the Association to hear for some time. He said exercise out in the open air and sunlight was a most essential requisite to health. Thus we procure keenest appetites and enjoyment, accelerate and deepen circulation and respiration; tone and strength are given to every organ; thus we promote secretions and excretions. When neglected, stagnation and impurity begin, and, if habitual, disease is invited and life shortened. He then told of the value of exercise in strangles, grease-heel, influenza, dumb staggers, and laminitis in its early stages, congestive pneumonia, azoturia, etc., and went into details to tell why and in just what way the exercise was helpful in each case, and how they were put upon their feet and started when found down. He dwelt especially upon the value of good sanitation, good ventilation, and plenty of light. He defended his views in the discussion, citing a number of cases where one would think movement impossible; he has proven it not only to be practical, but found it to be essential to a rapid recovery. He concluded by saying we must not expect an animal to have perfect health or be restored, when sick, if confined in a dark place without exercise. The discussion was interesting, bringing forth many good points and numerous opinions.

Dr. William R. Ridge now read his paper on "Acute Indigestion in the Cow." This paper also showed much thought and thorough work on the part of the author. The discussion on this paper was taken part in by each of those in attendance, and would have taken up considerable space, but was closed, that our annual election might be held.

The results of said election were as follows: President, Leonard Pearson; Vice-President, Hile P. Eves; Treasurer, Francis Bridge; Secretary, W. L. Rhoads; Censors, William H. Ridge, W. Horace Hoskins, W. S. Kooker, T. B. Rayner, and Charles Lintz.

President-elect Pearson was now called to the chair, the duties of which he accepted in a short, expressive, and appropriate speech.

Dr. Hoskins spoke now of the present meat-inspection of Philadelphia and possible means of improvement. He then made a motion that the President appoint a committee of three to confer with the Woman's Health Protective Association and other kindred organizations in an endeavor to bring about a better system of meat-inspection.. The President appointed as committee Drs. W. H. Hoskins, John W. Adams, and F. S. Allen.

Dr. S. J. J. Harger now reported several cases of open joint, with discharge of synovia in the cases where the animal at the same time was affected with strangles; the recovery was most rapid and complete. He wanted to know if there was a specific action upon the joint due to the streptococci causing the latter trouble. The discussion was necessarily short, as the meeting now adjourned, postponing the report of delegates from Franklin until November 9th. DR. W. L. RHOADS,

Secretary.

NEW YORK STATE VETERINARY MEDICAL SOCIETY.

THE eighth annual meeting convened in the assembly room of the Vanderbilt, Syracuse, September 14th, at 11 A.M. As neither the President nor Vice-President was present, Dr. Roscoe R. Bell, of Brooklyn, N. Y., was chosen President *pro tem.*, who offered a few remarks in expression of his appreciation of the courtesy the members had shown in asking him to preside over the deliberations of the Society. On roll-call, the following were present: Drs. E. F. Bettinger, J. A. Bell, R. R. Bell, W. L. Baker, H. E. Clark, J. M. Currie, Charles Cowie, W. S. Corlis, E. M. Casey, G. C. Dean, H. D. Gill, M. Henderson, Wilson Huff, V. L. James, F. L. Kilborne, G. C. Kelser, W. H. Kelly, James Law, V. A. Moore, F. Morrow, C. D. Morris, J. A. McCrank, Arthur O'Shea, Thomas O'Dea, R. Perkins, M. N. Poucher, W. H. Pendry, J. A. Pendergast, J. L. Ronan, W. B. Switzerm, A. G. Wicks. The record of the previous meeting was read and submitted for corrections; there being no errors, it was accepted and ordered spread on the minutes.

The Secretary then gave his annual report, which was an exhibit of the work of the office, the finances of the Society, the growth of the profession in the State as it relates to both physical and literary achievement.

The Board of Censors reported favorably on the following applications for membership: Charles F. Ebner, Syracuse; E. F. Bettinger, Chittenango; E. M. Casey, Oxford; H. E. Clark, Newburgh; F. L. Kilborne, Kelloggsville, and George Eighmy, North Chatham; and recommended the following on the application of John P. O'Leary, vouched for by Drs. Hinkley and Willyoung: "Inasmuch as this application comes down to us without action from a previous Board of Censors, and that the facts that led to their laying it on the table are not before us, we recommend that action be delayed for further investigation." The Board further recommended that the Society accept the resignation of J. H. Ferster, of New York City, and to hold over the resignation of Herbert F. Neher, of New York City, on the ground of his indebtedness to the Society. Report of the Board of Censors was accepted. A motion prevailed that the Secretary cast an affirmative ballot for the applicants favorably reported.

A motion to adjourn for lunch was carried.

Afternoon Session. Meeting convened at 1.30 o'clock. The newly elected members were introduced to the sitting members of the Society with a few well-chosen remarks by Dr. R. R. Bell, the presiding officer, assuring them of the fraternal feeling on the part of the Society in their behalf, and that in their new social relations to the profession much would be expected of them.

The report of the various committees was in order on the programme. The Executive Committee had nothing to report.

The By-laws Committee reported on the motion to amend Article VIII., Chapter I., in relation to annual dues, so as to read, "the dues shall be three dollars per annum, payable in advance." The amendment to raise the annual dues from two dollars to three dollars per annum was strongly opposed by Drs. Law, Gill, and Switzer. The question being called, the vote resulted in favor of the negative, twenty to five.

The second amendment to Article VIII., Chapter I., relating to the initiation fee and annual dues accompanying the application of future candidates, was carried by unanimous consent. If such application is accepted, such fees and dues to be appropriated to the use of the Society; if rejected, the money to be refunded.

The report by the County Secretaries was both interesting and instructive. The reports show plainly that the Society has inaugurated a movement in behalf of sanitary work which is producing excellent results. Several local boards of health now employ a veterinarian, whose duty it is to inspect the meat- and milk-supply of his neighlorhood or district.

The Committee on Legislation, through its chairman, Dr. Kelly, rendered a full report of work done during the last session of the Legislature. This report was accepted. A supplementary report of this work was submitted by Professor Law, a member of the Legislative Committee, which report dealt with matters pertaining to the Public Health Department of the State, and its relation to the Tuberculosis Commission, with a suggestion that, inasmuch as the Department of Health and Agriculture could not agree on matters supporting the Tuberculosis Commission, that a new commission be formed, composed of three men, namely, the Secretary of the State Board of Health, the Commissioner of Agriculture, and the Director of the New York State Veterinary College. In support of this compromise it was shown by Drs. Law, Kelly, and Morris that such a commission would represent all interests and harmonize whatever feeling may exist in these two departments toward each other in support of a great sanitary work, and that in the end the public would reap the greatest benefit. This feature of Professor Law's report brought forth a vigorous protest from Drs. Gill and Bell, each representing respectively the Veterinary schools of New York City. Their argument was that such a measure ignored the pioneer veterinary colleges of the State, and that the tendency at the State College (through the Director) was to centralize the function of the veterinary profession throughout the State in the interests of the State College. After some further discussion of the matter the question was ordered to be laid on the table.

Reading of professional papers being in order, Professor Law gave a very instructive paper on "How to Prepare Contagious Products for Shipment to the Pathological Laboratory." The information this paper imparted on that subject outlined the essentials necessary to successfully prepare and ship to the laboratory any pathological specimen. To the painstaking and inquiring veterinarian this paper is of great value.

Dr. V. A. Moore, of the State College, read a paper entitled, "Poisoning by Carbonate of Soda, a Cause of Death Among Swill-fed Hogs," and also with the aid of charts gave "The Distinction between Hog-cholera and Swine-plague: the Post-mortem Appearances as Usually Observed in these Diseases." Dr. Moore's paper and remarks were very instructive. Few men are able to distinguish between these two diseases, but we feel that every one who heard Dr. Moore on this subject added to his store of professional knowledge a rich supply of material touching an important question of a disease which is quite obscure and which is constantly working eastward, and this year to a greater extent than ever. The paper brought forward many questions of inquiry, and was discussed all round the room.

A motion prevailed to hold an evening session. Adjourned for dinner to convene again at 7.30 P.M.

Evening Session. The President appointed the following-named gentlemen a Committee on Resolutions: Drs. Gill (Chairman), Kelly, O'Shea, Pendry, and Morris.

Dr. W. L. Baker read a paper on the "Uses of Cold in the Treatment of Laminitis." The merits of such treatment were discussed freely. The meeting adjourned.

September 15th: Meeting called to order at 11 o'clock. Morning session opened by the reading of a paper by Professor Roscoe R. Bell, of the American Veterinary College; subject, "Infectious Catarrhal Fever of Horses." Dr. Bell's paper covered every phase of this disease. The etiology, pathology, and treatment of this disease were handled in a clear, concise manner. The paper was very instructive, eliciting much discussion.

"Caudal Surgery; its Objects and Results," were clearly defined from the pen of Dr. W. L. Williams, of the State College. Dr. Williams being unable to attend the meeting, Professor Law read the paper.

Dr. Charles Cowie gave an instructive paper on "Thoroughpin and its Treatment." His method is to draw off the bursal fluid and then fire the lining membrane of the sac, a mode of treatment among some veterinarians in France thirty-five years ago. Dr. Bell, of Watertown, treats thoroughpin by the same method, and both he and Dr. Cowie report excellent success from this kind of treatment. The opinion of many in the room was that Dr. Cowie had unlocked an old treasure-box and exhibited something new.

The next paper on the programme was "Veterinarians as Jurors," by Dr. Morris, who called attention to the principle that as citizens and professional members of society we have no right or just excuse to refuse to bear our just proportion of the obligations we owe to the public, which coexist with the function of citizenship; that shirking is skulking from a common duty, and gives semblance to the impression that the men of the profession refuse to uphold one of the fundamental laws of the land, thus showing their disrespect for a time-honored institution, which has become a bulwark in the fabric of civilized nations. A motion prevailed to adjourn for lunch.

The meeting convened at 2 P.M. Committee on Resolutions reported that nothing had been presented. Dr. Huff, of Rome, presented a communication relative to sanitary work performed by their local Board of Health among the dairies suplying that city with milk; also read newspaper extracts in criticism of that work. A motion prevailed directing the Secretary to communicate with the health authorities of the city of Rome, tendering them an expression of approval for the excellent sanitary work they were carrying out in behalf of the consumers of dairy-products and animal flesh.

Nomination and election of officers being next in order, the following-named gentlemen were elected for two years: W. L. Baker, of Cortland, President; Roscoe R. Bell, of Brooklyn, Vice-President; and C. D. Morris, of Pawling, Secretary-Treasurer. The censors elected were Professor James Law, of the State College, Ithaca; W. H. Kelly, Albany; M. M. Poucher, Oswego; Wilson Huff, Rome; H. D. Gill, New York City.

A motion to consider a place for holding the next annual meeting was carried; and, after a brief discussion on the question, by balloting New York City was chosen by a majority of one.

Some of the papers read at the meeting will appear in print.

A motion to adjourn was carried.

CLAUDE D. MORRIS,
Secretary.

MISSOURI VALLEY VETERINARY MEDICAL ASSOCIATION.

THE Association convened in the lecture-room of the Kansas City Veterinary College on the evening of October 6, 1897, and was called to order by the President, Dr. S. L. Hunter. The following-named members were present: Drs. E. H. Biart, T. A. Bray, S. L. Brooking, John Ernst, R. H. Harrison, W. A. Heck, F. W. Hopkins, S. L. Hunter, G. A. Johnston, B. F. Kaupp, R. C. Moore, E. P. Schaffter, R. P. Steddon, S. Stewart, and J. B. Wright. A number of college students were also in attendance.

The President did not deliver an address, but gave in lieu thereof a financial statement of the affairs of the Association for the three years he served as Secretary and Treasurer. The statement showed the Association to have a small cash balance on hand and a considerable amount of unpaid dues still to be collected.

Dr. Brooking presented a very terse yet interesting paper on the subject of "Extra-uterine Pregnancy," in which he called attention to the frequency of its occurrence in the sow in contrast to its infrequency in the cow or mare. The Doctor had seen two extra-uterine fœtuses removed from the abdomen of one sow. The paper called forth an interesting discussion.

Dr. Kaupp presented a short paper on "Texas Fever," in which he called attention to the post-mortem lesions as seen on the slaughter-beds and noted the absence of many of the typical conditions seen in cases which died from the disease or had been killed shortly before they would have died, to study the disease lesions. The discussion of this paper was quite animated, and all the members—also some of the visitors—contributed points of interest.

Dr. Heck reported a very interesting and peculiar case of laceration of a muscular pillar of the diaphragm, with inflammation extending to the adjacent organs, in a horse. The case terminated in death. The Doctor noted the peculiar desire of the horse to lie in a wallow of mud in a sterno-ventral position with forelimbs flexed under the chest like the cow.

The Association passed a resolution instructing the Secretary to urge the U. S. V. M. A. to hold its next annual meeting at Omaha, Neb., and pledging its good offices in helping to make that meeting interesting and profitable.

Dr. Stewart kindly favored the Association with a talk on the proceedings of the U. S. V. M. A. meeting at Nashville, Tenn., which was listened to with great interest by all.

The Association adjourned to meet December 8, 1897, in Kansas City Veterinary College.

E. P. SCHAFFTER, V.S.,
Secretary.

NEW YORK COUNTY VETERINARY ASSOCIATION.

THE regular monthly meeting of the Association was called to order at 8 o'clock P.M., at the Academy of Medicine, on Wednesday, October 6th, with the President, Dr. Huidekoper, in the chair.

The following members responded to roll-call: Drs. J. S. Cattanach, Delaney, Dair, Ellis, Farley, Foy, Gill, Huidekoper, Hanson, MacLean and MacKellar. The minutes of the previous meeting were read and approved.

The Board of Censors and Judiciary Committee had no reports to make. The Committee on Publication reported having considerable of the material of the *Blue Book* now in the hands of the printer, and the rest ready outside for corrections; also that considerable addition to the original undertaking had been considered advisable and had been accomplished, taking in every State in the Union, and the laws relative to contagious diseases in the United States and Canada.

Under the head of new business, a motion was made by Dr. Gill, and seconded by Dr. Hanson, that the President appoint a committee to draft suitable resolutions upon the death of our late member, Edward Loomes; carried. The President thereupon appointed to act on said committee Drs. Gill, Cattanach, and Farley, and directed that a recess be taken for the preparation of the resolutions. On returning, the committee submitted the following:

WHEREAS, It has pleased Almighty God to take from among us our respected professional brother, Dr. Edward Loomes, a charter-member of this Association. He was a man of great personal attraction, and his ability as a veterinarian commanded a large and remunerative practice; and by his death this Association loses a valuable member and the profession a worthy colleague; therefore, be it

Resolved, That we, the members of the Veterinary Medical Association of New York County, tender to his bereaved widow, in this the hour of her affliction, our heartfelt sympathy; and be it further

Resolved, That a copy of these resolutions be properly engrossed and presented to Mrs. Loomes.

Moved and seconded that the resolutions offered by the committee be adopted; carried. Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS,
Secretary.

VETERINARY MEDICAL SOCIETY, UNIVERSITY OF PENNSYLVANIA.

THE first meeting was held Friday evening, October 8, 1897. The forepart of the evening was spent in the election of officers, which resulted as follows: President, G. Chesley, '98; Vice-President, P. Jones, '98; Secretary, M. Jacob, '99; Treasurer, A. Cunningham, '98; Librarian, C. T. Keiter, '99; Executive Committee, L. D. Horner, '98; F. Taylor, '99; L. L. Cheney, '99; L. A. Nolan, 1900.

The election seemed to be the main feature of the evening. Several more students are expected to join the Society in the near future. The programme for the ensuing year promises to be a very instructive one, and hence of great value to its members.

Meeting called to order at 8 o'clock P.M., October 22d. The name of Mr. Hughes was proposed, and he was duly elected to membership.

Mr. Cheney made a report in regard to the examination of the Treasurer's and Secretary's books, and found them to be correct.

Mr. Chesley delivered an inaugural address as President of the Society; it was short, but very enthusiastic, and was highly appreciated by the Society.

It was moved and seconded that a committee of two be appointed by the President to inquire into the matter of prohibiting strangers in the operating-room during operations.

Mr. Spindler then read an extremely beneficial and interesting paper, entitled "The Characteristics of Holstein Cattle."

Mr. Jones reported an interesting case in regard to how electricity had subdued a balky horse.

The programme for the next meeting was read by the Secretary. The Society then adjourned at 9.30 o'clock. M. JACOB,
Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

THE thirty-ninth regular meeting was held at the State Street House, Trenton, N. J., on October 14, 1897, Dr. Arrowsmith, President, in the chair. Roll called and minutes of previous meeting read and approved. After the regular business of the Association was disposed of it was moved and carried to dispense with the reading of papers at this meeting and devote the time to the preparing of bills to be presented to the next Legislature. Dr. Miller moved the Secretary write a letter of condolence to the family of the late Dr. Rudolph Leis, who was at one time a member of this Association; seconded and carried. Moved and carried that the Secretary present to the Trustees a notice in writing of the proposed changes to the By-laws. Adjourned to meet at Trenton in April, 1898. S. LOCKWOOD,
Secretary.

THE MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE regular meeting of the Association was held on the evening of October 14, 1897, in the library, the retiring President, Professor Baker, occupying the chair. After roll-call and the reading of minutes of the previous meeting, which were accepted, the election of officers for the ensuing year, which had been postponed, took place, with the following result: President, Prof. Charles McEachran; First Vice-President, Prof. M. C. Baker; Second Vice-President, Dr. Martin; Secretary-Treasurer, W. B. Wallis; Librarian, J. P. Stanton. The retiring President then made a few farewell remarks, pointing out the advantages of such societies, especially to students, in educating them how to properly express themselves in public, and also that the reading of essays necessitated a man getting up his subject exceptionally well, in order to properly defend his paper. The newly elected President then took the chair, and after expressing his appreciation of the honor done him, urged upon the members the value of practical work and of the experimental committee in making careful reports of the action of drugs.

Mr. Lambert, being called upon by the President, read a practical though somewhat brief essay on "The Nature and Treatment of Inflammation." Treating his subject from a clinical rather than a theoretical point of view, he explained the reactive phenomena occurring in nature during the process by some original illustrations.

In the argument which then followed it was suggested that the benefit derived from applying counter-irritation to a diseased articulation might in part be due to the prolonged rest and degree of inability such an agent enforced on the part.

Mr. Wallis then reported a severe case of pneumonia in a race-horse, his object being to advocate the use of some preventive treatment, during convalescence, against the disastrous whistling and roaring that were so frequently commemorative of diseases of the respiratory organs situated in the thoracic cavity.

For this purpose he suggested a course of potassium iodide and nux vomica, the former to hasten the absorption of inflammatory products, while the latter might correct any defective nervous power.

The President then appointed Messrs. Paquin and Spanton as essayists for the following meeting, and Mr. Lambert to report a case.

Messrs. Bell and Spanton were appointed as acting members on the Experimental Committee.

There being no further business, the meeting then adjourned.

W. K. WALLIS,
Secretary-Treasurer.

ONTARIO VETERINARY ALUMNI OF MASSACHUSETTS.

A MEETING was held at the United States Hotel in Boston, October 7th, by a number of graduates of the Ontario Veterinary College, and there organized into the "Ontario Veterinary Alumni of Massachusetts," with Dr. Pierce, of Boston, President: Dr. Keene, Fitchburg, Treasurer, and Dr. Francis Abele, of Quincy, Secretary.

A paper was read by Dr. Abele on "Parturient Apoplexy;" another by Dr. Pierce, on "Thrombus of the Metacarpal Artery." Considerable discussion and exchange of ideas resulted. At the next meeting, which is to be held at the same place on the first Wednesday of December, papers will be read by Drs. Keene and Stearns.

The Society would like to learn of any Ontario graduates in the State with whom it has not corresponded. Such should correspond with Dr. Abele, of Quincy.

DR. FRANCIS ABELE,
Secretary, Quincy, Mass.

CHICAGO VETERINARY SOCIETY.

THE October meeting was held on the evening of the 14th. It being the annual meeting, the important work of selecting officers for the ensuing year was first for consideration. The work of the officers during the first year being so successful, it was deemed best to continue in office for another term all those who would accept a reëlection. Under this decision the choice of President fell upon the shoulders of Dr. Robert G. Walker; for Treasurer, Dr. G. E. McEvers; Dr. Lawrence Campbell, the very efficient and hard-working Secretary for the first year, declined a reëlection, and the Society, in its appreciation of his faithful services, bestowed on him the honor of first Vice-President. A hearty vote of thanks accompanied this recognition of efficient services. Dr. A. E. Flower was selected as second Vice-President, and Dr. A. Worms as third Vice-President. The choice of Secretary fell upon Dr. James Henderson.

The Committee on Literature and Publication were a target of criticism during the past year for lack of papers for reading. Good results followed the stimulation, and four papers were voluteered for the November meeting.

Dr. Frank Allen introduced the following resolution: "That any of our members who are assistants of the present State Veterinarian (a non-graduate) be invited to appear before our Board of Censors at our next meeting and show cause why their resignations should not be asked for by the Society. This resolution was seconded by Dr. P. Quitman, and carried.

JAMES HENDERSON, M.R.C.V.S.,
Secretary.

CALIFORNIA STATE VETERINARY MEDICAL ASSOCIATION.

THE third quarterly meeting for the year 1897 was held in the rooms of the Baldwin Hotel, San Francisco, on September 8, 1897, commencing at 8.30 P.M. The meeting was called to order by the President, Dr. R. A. Archibald. The roll was called, and a fair attendance was present. The minutes of the previous meeting were read and approved.

Dr. Fox moved that a committee be appointed to draft resolutions of respect to the memory of our late member, Dr. P. P. Parent. The motion was carried, and Dr. Fox was appointed as said committee.

Under the head of reports of committees, Dr. Jackson, as a committee of one appointed to wait upon the San Francisco members and ask them to donate something toward defraying the expenses incurred during the last session of the Legislature, made his report. The report showed that no money had been collected since the last report; the report was accepted and the committee discharged.

Dr. H. F. Spencer, chairman of the committee appointed to draft a resolution protesting against the action of the Governor of the State of Illinois in appointing a non-graduate to the office of State Veterinarian of that State, submitted the following:

WHEREAS, It has come to the notice of the California State Veterinary Medical Association that Governor Tanner, Governor of the State of Illinois, has appointed a non-graduate to the office of State Veterinarian of that State; and

WHEREAS, It is universally admitted that Dr. Trumbower, the recent State Veterinarian of that State, was a well-qualified, painstaking, and efficient officer; and

WHEREAS, The action of Governor Tanner, in the appointment of a non-graduate to so important an office, establishes a pernicious example, as is evidenced by the action of the authorities of the city of Chicago in the appointment of a non-graduate to the position of veterinarian for the fire department of that city; therefore, be it

Resolved, That the California State Veterinary Medical Association do protest against the said appointment of a non-graduate as State Veterinarian of the State of Illinois; and be it further

Resolved, That the action of Dr. Joseph Hughes and Dr. J. F. Ryan, of Chicago, in resigning their positions as Assistant State Veterinarians of that State, be heartily commended by this Association; and be it further

Resolved, That copies of these resolutions be forwarded to Governor Tanner and to the different veterinary journals, and that they be spread upon the minutes of this Association.

Signed by H. Francis Spencer, R. A. Archibald, D. F. Fox, committee.

The resolution was unanimously adopted, and it was "so ordered."

Dr. D. F. Fox introduced the following resolution:

WHEREAS, It has pleased Almighty God, in his wise dispensation, to remove from among us our late member, Dr. P. P. Parent; be it

Resolved, That while we bow humbly to His will, we nevertheless feel keenly the loss we are called upon to sustain, for in our late member we had one who was devoted to his profession and to the Association, and a man who was honored and respected by the members of this Association and the entire community in which he lived; and be it further

Resolved, That a copy of these resolutions be spread upon the minutes of this Association and a copy be sent to the wife of the deceased. So ordered.

A communication was read from a Mr. Thomas, of San José, asking information as to the professional qualifications of Dr. F. Forrest, of San José, and whether or not he was capable of teaching his son the science of veterinary surgery intelligently. The communication was placed on file, as Mr. Thomas had already been notified that it would be wise for him to send his son to a veterinary college.

The name of Dr. P. C. Davenport was dropped from the roll of membership.

Under the head of new business, Dr. R. A. Archibald introduced the subject-matter of the appointment of a committee on diseases. He spoke at some length on the advisability of appointing such committee, the responsibility of the committee and the work it would entail upon them. Dr. Pierce also spoke on the subject; he agreed with Dr. Archibald that it would be placing a great amount of work upon a few, but at the same time he realized the benefits to be derived from such a committee. After considerable discussion by the other members present, it was decided to defer further action until the next meeting.

Nomination of officers for the ensuing year was next in order, and resulted as follows: For President, Dr. R. A. Archibald, of Oakland; for Vice-President, Dr. G. F. Faulkner, of Salinas; for Secretary, Dr. D. F. Fox, of Sacramento; for Treasurer, Dr. C. L. Megowan, of Sacramento; for Board of Examiners, no nominations. All nominations were left open until the annual meeting.

Reading of papers was postponed until the annual meeting. Several subjects were introduced for discussion, which proved to be very interesting.

Essayists for the next meeting were appointed, as follows: Dr. F. E. Pierce, of Oakland; Dr. G. F. Faulkner, of Salinas; Dr. H. A. Spencer, of San José; and Dr. C. B. Orvis, of Milton.

There being no further business before the meeting, it adjourned to meet in San Francisco, Wednesday, December 8, 1897. D. F. Fox,
Secretary.

PENNSYLVANIA STATE BOARD OF VETERINARY MEDICAL EXAMINERS.

The regular December meeting will be held in Philadelphia on December 14, 1897, to examine all applicants for license and to answer all other matters placed before the Board.

W. Horace Hoskins,
President.

S. J. J. Harger,
Secretary.

PERSONAL.

He Turned Up, but was Attired in Military Garb.—There are some individuals whose presence or absence at any representative gathering of the profession or business to which they belong gives occasion for remark. Such was the case with one of our prominent Eastern members, whose conspicuous figure was so much missed from the thirty-fourth annual convention of the United States Veterinary Medical Association, held in Nashville, Tenn., the correct date of which he was, we have no doubt, officially notified; but on account of some valid reason, best known to himself, did not put in an appearance "on time." Although some thirty or forty days late, however, he did turn up in the Centennial City, but attired in the chevrons of a sergeant-major of Troop C, N. G., N. Y. Just how long our gallant military confrère had frequented the beautiful and picturesque grounds of our Southern White City we are not prepared to say, but he was found on the streets of Cairo, where he had, no doubt, been testing his equestrian powers on some of the "ships of the Eastern desert." There was evidence, also, that our worthy friend had bestowed considerable patronage upon various other sights and frivolities to be seen and enjoyed on "Vanity Fair." Compassion for our friend touched a respondent chord in our hearts, and we saw him safely off from the union depot, with the train headed East. In this act of fraternal consideration the profession are under a debt of gratitude to the veterinarians of Nashville. So left us Dr. W. H. Pendry, of Brooklyn, N. Y., with the parting ejaculation on his lips: "Just tell them that you saw me."

Dr. W. L. Williams, of Ithaca, N. Y., addressed the Tompkins County Medical Association, in October, on "Irrigation of the Bronchi."

We are glad to know of the return of Dr. Nelson P. Hinkley, of Buffalo, to duty again after a successful operation.

Dr. George Jobson, Jr., of Franklin, Pa., has entered the medical department of the Columbia University at Washington, D. C., for the completion of a course in human medicine. Dr. Jobson will fill the chair of anatomy at the veterinary department of this institution during the sessions of 1897 and 1898.

Veterinarian H. R. Cleveland, of Danville, Quebec, is much interested in the breeding of standard horses in connection with "Rock Farm."

Dr. Hobart A. Hare, editor of the *Therapeutic Gazette*, has sufficiently recovered from his recent attack of typhoid to hazard a trip to Bristol, R. I., to recuperate.

Dr. Walter L. Hart, City Veterinarian of Philadelphia, had the misfortune in October of losing one of his children.

One afternoon along the drive of Central Park, N. Y., we noticed Dr. T. G. Sherwood seated behind a pair of heavy-harness horses attached to a brake-wagon; Dr. Buckley with a speedy one waiting for a brush at every favorable point; Dr. W. D. Critcherson taking a quiet afternoon drive; Dr. H. D. Gill with his fast pacer and trotter, harnessed to a bicycle road-wagon, and looking for fresh laurels on the road with his fast-gaited pair.

Governor Hastings, of Pennsylvania, has reappointed Drs. J. C. McNeil, of Pittsburg, and Harry Walters, of Wilkesbarre, members of the Pennsylvania State Board of Veterinary Medical Examiners.

Dr. W. L. Thayer, formerly of Marlborough Depot, N. H., has changed his place of residence to Worcester, Mass.

Dr. L. A. Merillat, of the McKillip Veterinary College, was called upon for expert testimony by the defense in the celebrated Luetgert murder case. Dr. Merillat's testimony was to the effect that the femur-bone found was that of a hog instead of a woman, as the prosecution tried to prove.

Dr. Frederick L. Felber, of Baltimore, Md., was a visitor to Philadelphia in October.

Dr. N. S. Mayo, late of Manhattan, Kansas, who had matriculated at the New York State Veterinary College, has been called to Storr's Agricultural College, Conn.

Secretary Edge, of the State Board of Agriculture of Pennsylvania, with State Veterinarian Pearson, of the Live-stock Sanitary Board, were visitors to the Department of Agriculture at Washington, D. C., in October, looking to the enforcement of the new regulations in Pennsylvania governing the introduction of dairy cattle as to tuberculosis.

Dr. W. S. Underhill, of Media, Pa., recently saved the life of a little two-year-old tot from drowning while on his professional rounds.

Dr. W. Horace Hoskins, one of the editors of the JOURNAL, will lecture to the veterinary students of the University of Pennsylvania during the present college year on veterinary jurisprudence and ethics.

Veterinarian T. B. Pote, Sanitary Inspector of the Board of Health of Terre Haute, Indiana, read a paper in October before the Vigo Medical Society on "Some Dangers of Milk."

Dr. F. deM. Bertram, of Newport, Rhode Island, was among the list of applicants before the New York State Board of Veterinary Medical Examiners.

Dr. R. T. Stanclift, of Americus, Ga., a graduate of Ontario Veterinary College, is among the students of the New York State Veterinary College at Ithaca, N. Y.

Dr. W. T. Monsarrat, graduate of the Ontario Veterinary College, class of '89, is now employed by the Board of Health of Honolulu, Hawaiian Islands, as meat-inspector and inspector of dairy-cattle.

Veterinarian W. T. Frady, of Marietta, Ind., met with a severe loss by fire in October, which destroyed the contents of his stable, including forty-three valuable horses in training. The total loss will reach $25,000.

Prof. R. S. Huidekoper stills spends Friday to Monday at Newport, Rhode Island, looking after his professional work at that watering resort.

The veterinary hospital of Dr. B. M. Freed, of Sharon, Pa., was badly damaged by fire in October.

Edward T. Reichert, M.D., Professor of Physiology in the Medical Department, succeeds Dr. W. S. Carter in the same work in the Veterinary Department of the University of Pennsylvania.

Dr. Alexander Glass, of Philadelphia, has matriculated at the Jefferson Medical College for a course in human medicine.

Dr. William Dougherty, of Baltimore, Md., was a visitor to the JOURNAL office in October, spending a part of his day in the Quaker City at the Veterinary Department of the University of Pennsylvania.

Dr. Theobald Smith delivered the introductory address at the opening of the Veterinary Department of Harvard University in October.

Dr. Cooper Curtice, of Moravia, N. Y., has recently been associated with the Massachusetts Cattle Commission in the investigation of Texas-fever within the borders of the Bay State.

Dr. Paul Fischer, of Ogden, Utah, has succeeded Dr. N. S. Mayo at the State Agricultural College at Manhattan, Kansas.

The Board of Trustees of Clemson College, S. C., have granted an eight months' leave of absence to Dr. W. E. A. Wyman, which will be partly devoted to clinical medicine and bacteriological and pathological researches. His clinical work will be done at McKillip College.

Dr. William H. Pendry, of the Thirteenth Regiment of Brooklyn, was a visitor to the Nashville Exposition in October on Brooklyn day. On his return home he visited a number of veterinarians in Washington, Baltimore, and Philadelphia. His visit to Philadelphia included a trip to the University and the JOURNAL office.

Dr. A. J. Thompson, of Terre Haute, Indiana, is in the hands of the court on the charge of perjury relative to an alleged payment of an insurance premium to a company he represents in the above city. The evidence of holding is that such payment was never paid as alleged.

Dr. A. H. Wallace, of Turkey, N. J., was a recent applicant for license before the New York State Board of Veterinary Medical Examiners.

Prof. Wesley Mills, of Montreal, started for a trip abroad in October, Leipsic, Germany, to be his ultimate destination.

Dr. Thomas Castor, of Frankford, Philadelphia, has received an appointment as meat-inspector under the Bureau of Animal Industry, and directed to report at Buffalo, N. Y., for duty.

Dr. W. C. Rayen, of Nashville, has been granted a year's leave of absence from duty by the Bureau of Animal Industry at Washington, D. C.

Dr. L. A. Greiner, of Indianapolis, is a frequent contributor of answers to the inquiry-column of the *Jersey Bulletin* as to diseases of cattle.

Drs. W. G. Clark, of Beaver Dam, and H. P. Clute, State Veterinarian of Wisconsin, have formed a copartnership under the firm name of Clute & Clark, and located at Marinette in the Badger State.

The veterinary inspectors at the Chicago horse-show, November 1st to 6th, were Drs. M. H. McKillip, Frank T. McMahon, and B. A. Pierce.

Dr. B. T. Smelzer, Secretary of the New York State Board of Health, has issued a catechism on tuberculosis for distribution throughout the State to all inquiries as to the nature and character of this disease.

Prof. A. Smith, of Toronto, Canada, is one of the stewards of the Ontario Jockey Club, and fills the post well.

Dr. C. C. McLean, of Meadville, Pa., exhibited three very good horses in several classes and won some prizes at the horse-show in Pittsburg during the month of October.

Dr. C. S. McKenna, of Washington, has been spending his vacation at a sanitarium in Michigan.

Dr. C. Barnwell Robinson, President of the District of Columbia Veterinary Medical Association, made part of his mission to Nashville the securing of the meeting of the U S. V. M. A. for 1898 at Washington. The press of Washington and the Commissioners of the District favor the Capitol City for the convention Mecca for 1898.

Dr. G. M. Brumbaugh, Assistant Chief of the Bureau of Animal Industry, is making a personal investigation for the Washington authorities of the disease among cattle near DuBois, Pa., which has been reported as anthrax.

Dr. W. L. Zuill, of Philadelphia, has recently made a very large contribution of important and valuable pathological specimens to the New York State Veterinary College.

Prof. R. S. Huidekoper was recently the chief participant in a bicycle collision on Fifth Avenue, New York City, whereby he found himself unceremoniously at the feet of a lady in a drag. After extricating himself from this embarrassing position, making due apology for his uninvited call, gathering up his broken wheel, and calling a cab, he made his way home in a four-wheeler, but little the worse bodily for his experience.

Dr. T. E. White, State Veterinarian of Missouri, started in early September for a two months' circuit of the Farmers' Institutes.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, addressed several of the Farmers' Institutes of the Keystone State during the month of September.

Dr. A. K. Robertson, of Brooklyn, was one of the judges of horses at the New York State Fair.

Dr. M. H. Reynolds was one of the judges at the Minnesota State Fair this year, and will judge the horses at a number of county fairs during the fall. The doctor has always been a close student of horse form and proportion, and seems to be winning reputation in the Northwest as an expert judge of good horses in the show-ring.

Veterinarian T. Earle Budd, of Woodbury, N. J., was defeated for the nomination of Coroner of Gloucester County in September.

THE OUTSIDE WORLD.

Before the Mayors' Convention at Columbus, Ohio, in September, Mr. Nathan Strauss, of New York, said: "There is practically no milk delivered for general consumption in cities that is fit to be fed in its natural state to young children. I think I have demonstrated the proposition that many thousands of infants' lives are annually sacrificed by neglect to supply, for the nutriment of children, milk which has been sterilized. I hold that neglect to be criminal, and I leave it to you to fix the responsibility for it. We punish murder with the penalty of death, and yet we allow murder to be committed by the wholesale in every populous community of this land with no thought of its punishment and little thought of its prevention. You have the means under your control by which these babies can be saved. I ask you, Will you not apply them? Men are found capable of acts of heroism in presence of danger less threatening and less surely fatal. All that I plead for is the extension of the activity of local boards of health into a sphere which is legitimately theirs, but which they have so far lacked the conviction and courage to occupy."

From the far West comes the report that Dr. T. B. Short, of Chehelis, Wash., who was recently called to the stable of J. B. Rice to examine a sick mule, contracted glanders, and died of its effects. A hired man on the place of Mr. Rice has also succumbed to the disease, and as several others were exposed to the disease through the mule it is feared they may be affected also.

Janie T., the two-year-old trotter, making the pace in 2.15¼, breaks the record of the two-year-olds, and lowers the best filly-record one-half second. Such are the wonderful strides in raising and training the American trotting-bred horses.

The new team record made by John R. Gentry and Robert J. at Glen Falls, N. Y., on October 8, 1897, places it at 2.08.

The *Blue Book* is nearing completion, and will emerge from the printer's hands early in November, much enlarged and improved as a result of the delays.

The school of farriery for Greater New York, under the promotion of Prof. R. S. Huidekoper, still keeps on apace, and it is hoped to get it under full force this winter.

The demand for choice horses is not yet ended. Mr. Belmont's recent sale of his seventeen carriage horses at an avearge of over one thousand dollars each must be felt as an indication that there will never be an oversupply of good carriage horses.

Philadelphia has now among its prominent large buildings a professional one where every possible want is provided for the several branches of medicine, and where the privacy of a medical man's office may still be maintained.

Oil of sassafras one part, alcohol five parts, will keep mosquitos away.

A German writer strongly recommends ichthyol for insect-bites or stings, used in its pure state, applied directly to the parts affected.

Modern Medicine and Bacteriological Review quotes a French authority as conducting bacteriological experiments as to the existence of tuberculosis among fish. Carp placed under favorable environments developed tuberculosis in aggravated form.

President Purcell of the National Horseshoers' Association, recommends the establishment of a National School of Farriery.

Milking-machines are rapidly being brought to a practical and perfect production as to promise being a strong factor in increasing the number of dairy-cows throughout the West.

An advocate of dehorning says nervousness and dread among dairy-cows do not induce increased milkgiving. Quietness and gentleness should reign supreme on the dairy-farm.

The value of our range-horses for cavalry use is only slightly appreciated. Their powers of endurance are phenomenal, under great hardships of poor food and irregular watering and little care.

The horses of the street-cleaning department of Greater New York are used without check-reins.

Nebraska loses one of her pioneer and foremost horsemen in the death of Dr. A. O. Halliday, of Brownville. The trotter and pacer were his favored kind.

Mr. C. E. Stubbs, of Denver, Colorado, will look after American equine interests abroad, as special commissioner, studying for our horse-breeders the types of cavalry, carriage, and general purpose horses desired for the foreign markets.

The *Medical Fortnightly*, in an interesting article termed "Chinese Doctors and Their Practice of Medicine," records some curious remedies as in use in medical practice: To eat the flesh of a white horse with a black head will cause insanity. Ordinary horse-flesh may be eaten with impunity, excepting parts covered by the saddle, and the liver. Excrement of a cat is advised for asthma, as a close relation is believed in between asthma and purring. For dyspepsia yellow-dog meat is recommended, and black-dog meat for kidney diseases. Donkey and white-horse urine are used for worms, loss of appetite, and obstinate vomiting. Feline placentæ are given in consumption.

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DAIRY- AND MILK-INSPECTION.[1]

By C. COURTNEY McLEAN, V.S.,
MEADVILLE, PA.

PURE milk is a perfect food, and one of the most important of animal origin, as it contains all the different properties arranged in the proportions best suited for nutritive purposes, and may be regarded as the typical food.

Impure milk is a dangerous poison, as its impure condition is caused in nearly every case by the introduction of bacteria of some kind, either pathogenic or non-pathogenic, and the long interval between milking the cow and delivering the milk to the consumer allows ample opportunity for the bacteria to multiply to such an extent that from one hundred thousand to a million can be found in one drop.

Milk, being the secretion of the mammary glands, is poured out, as a rule, only in the last stages of a pregnancy and after the birth. It is an opaque fluid, with a sweetish taste, and an odor recalling that of the animal from which it came. Its specific gravity varies from 1028 to 1035. Milk is an emulsion, consisting of water holding in solution casein, or cheese; lactine, or sugar of milk; butter-fat, and ash—composed of sodium, potassium, chlorine, calcium, magnesium, phosphoric and sulphuric acid, and ferric oxide. At ordinary temperatures its alkaline reaction rapidly becomes acid, caused by the introduction of bacterium lactis, which converts the milk-sugar into lactic acid. The magnitude of the milk-business is astonishing, there being used in the United States $1,500,000,000 worth every year.

Veterinary inspection of dairies, dairy-cows, and milk as sold from milk-depots and vendors' wagons is a matter of vital importance to every consumer of the most necessary of all food-products that enter the human stomach. Every milk-inspector who thoroughly understands his business can do more to prolong the lives of the people living in his city or town than any other professional man, and he can, furthermore, check more cases of infantile digestive disturbance and disease than all the rest of the inhabitants in his community. There is absolutely no doubt in my mind that the veterinary milk-inspector can greatly prolong the average length of life by the proper exercise of extraordinary care of milk in all its relations. A large proportion of the deaths of people who die nowadays before reaching what is commonly called old age can be traced to the fact that microbes of every kind are allowed by them to enter their bodies through the swallowing of microbe-laden water, milk, or food, and through the inspiration of microbe-laden air. How many people are really careful to-day about the water or milk they drink, the food they swallow, or the air they breathe? And how many millions would be careful if they knew the difference between microbe-laden food and air and those which are pure?

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[1] Paper read before the Pennsylvania State Veterinary Medical Society, September 21, 1897.

Master minds all over the earth who are devoting their time, money, and energies to the invention and construction of terrible machines to kill other human beings, should devote their talents and means to the destruction of various bacteria that are more destructive and surer of accomplishing their purpose, and with more deadly effect than all the combined battle-machines ever invented by man. I refer to the perils that are all about us, that threaten us in the air we breathe, the water and milk we drink, and the food we eat. It is a sad and shameful fact that beings in the highest state of mental development should be absolutely at the mercy of billions and billions of unseen foes; that we should not know whether a mouthful of food or drink may bring us increased life and joy, or pain and death. Of all our food-products milk is the most easily affected by the myriads of bacteria that are constantly floating about us, and at all times, as milk is consumed largely by infants and invalids, and there are few homes where milk is not used in some form at every meal, by nearly every person, and for some it is an exclusive diet. Its composition makes it one of the very best mediums for bacteria to develop in. During the past ten years great strides have been made and much evidence has accumulated as to the causation of disease by milk; many cases of illness, and many epidemics are caused by the contaminated article.

Milk as it exists in the udder of a healthy cow is germ-free and pure. Milk is the first article of food for all mammalian life, and is more generally used than any other article of food, and is more easily contaminated than anything we eat; first, because of its wonderful absorbent powers and delicateness; second, because it is a most excellent medium for germs or bacteria to develop and multiply in, and the opportunity for the introduction of germs is greater than in any other article of diet that enters the human stomach, due to the fact that it is usually taken uncooked. It is a delicate fluid, rapidly decomposes, and requires constant vigilance to keep it of a high quality, and at the present time is produced with entirely too much carelessness, ignorance, and filth. Dirt in the form of dust is its most fruitful source of contamination.

It is a very unfortunate fact that milk must be drawn from a hair-covered udder on the under side of a hair-covered cow, as this part of a cow's hide retains particles of any dirt on which the cow may lie. The droppings of dust and bacteria from the hide of cows during milking, even when the animals are kept fairly clean, are very great. The introduction of dust from movements about the stables, caused by the shaking up of the bedding, the giving and eating of hay, are frightful causes of impure milk; and the bodily excretions also exert a very great influence in rendering milk impure.

The cleanliness of the hands and finger-nails of the milker are of vital importance. The hands should be dry; he who wets his fingers to milk is an unclean milker, as he or she, as it may be, in a mild manner washes the fingers in the milk, and some drops will fall into the pail. The outer garments of the milker must have attention, and should be clean when milking, as the different kinds of dust that necessarily gather about the clothing from being in the hay-mow, from cleaning horses and cattle, or various other sources, are not permissible in the milk-pails or other utensils. Carious molar teeth and a bad breath are incompatible with good milk; wounds and sores, when exposed, must be kept away from all milk-vessels, especially if of a syphilitic nature. To aid in the purity of milk each cow's udder and teats should be washed off with a clean cloth or sponge before every milking, and dried; if a sponge is used it should be scalded daily. The milk-house should be entirely separate from the dwelling and the stable; no family should live in or over a milk-house.

A really good article of milk or cheese cannot be produced in the cellar, kitchen, or other room of a dwelling-house unless specially separate from the dwelling apartments, and especially fitted for the care of milk, and kept as clean as soap and scalding-water and willing hands can make it. The milk-house or room must not be used as a wash-house or laundry. No barnyard, pig-pen, or privy should be located near it. There has never yet been a milk-house kept too clean. Wooden vessels, because difficult to keep clean, should not be used, stone and glassware being better; but for convenience and economy tin is best; the glazing on stone and earthenware vessels cracks or checks, and it is hard to cleanse them. Soap, soda, moderately warm water and then scalding-water are the only proper things to use in cleansing milk-utensils.

At once, after the milk is removed from the cow, it should be strained and thoroughly cooled, and on this very point depends the keeping properties of a vast amount of milk that is properly handled every way except in cooling, and it is not cooled quickly enough nor cold enough; milk should never be allowed to be over 50° F. after milking; after being rapidly and thoroughly cooled, it should then be placed in a cold room, which must be kept cold, but not cold enough to freeze. Much depends on straining milk; the common wire-strainer is of no use from a pure-milk standpoint; the milk should be strained through several thicknesses of canton-flannel with the rough side of the cloth up. Milk must be kept free from all odors.

No chemicals should be used in preserving milk, as they are injurious and dangerous. The keeping power of milk depends on how rapidly and cleanly the cows are milked, how perfectly the milk is strained and cooled by the extraction of animal heat, and the complete removal from any kind of foul air.

Every moment milk remains exposed to the air it deteriorates. The common hay-bacillus, found in every barn, multiplies so fast that in twelve hours the descendants of two or three will number as high as 10,000,000,000, and they destroy the fat-globules and milk-sugar in a few hours. The only absolutely pure milk is sterilized milk, and this is just as easily contaminated when opened and not used at once.

The heavy mortality among bottle-fed babies is due to the character of the milk they have to digest. The medical profession has sought for a long time to remedy this evil, and as a result the market is filled with various artificial foods, all with claims of superiority; many are preferable to cow's milk when it is subject to the various impurities I have mentioned; but they would not have a shadow of a claim could the cow's milk be pure.

Alterations in milk arise from other than atmospheric and unsanitary conditions. Tainted food and water play their part, as well as many forms of disease—disturbance of the digestive tract from excessive, tainted, or insufficient food; diseases of the udder, bowels, blood; medicines, a few of which I enumerate: The various salts of iron, zinc, mercury, iodine, and turpentine, belladonna, aloes, arsenic, carbolic and salicylic acids, colchicum, salts of soda, camphor, hellebore, and many more that you are all as well acquainted with as with those I name. It would not be an unwise plan for our sister profession to treat many diseases of children by giving them medicinal remedies through cow's milk. The following vegetable matters exert a most unfavorable influence on milk: Thistles, garlic, onions, turnips, cabbage, dandelion, chestnut-tree leaves, distillery malt or brewers' grains, and last, but not least, ensilage. The preservation of green fodder and grains by stowing them in a close chamber, and tramping or pressing them down by weights, and keeping the mass air-tight causes fermentation, during which alcohol in a small quantity is formed, as well as acetic, lactic and enteric acids, and decomposition rapidly commences when exposed to the air. It is certainly an unsafe food, and, I believe, I was the first to condemn its use from a pure-milk standpoint, and I succeeded in having our city board of health refuse to grant a license to any vendor who uses ensilage for his cows. And so far as brewery and distillery swills and grains are concerned, no person who has proper knowledge can deny that the fermentation and chemical change that take place in brewers' grain by the transformation of the starch into sugar, and sugar into alcohol, which is the necessary part for the brewer's production, and the consequent removal of this part of the food, lessens its value as a food, especially for milk-cows. The process of fermentation produced by the change mentioned leaves the mass in such a condition that exposure for only a short time to atmospheric influences starts a fresh fermentation which renders the food unfit to feed milk-cows, whose milk is sold to supply general trade, composed of old and young people, to say nothing of the sick, who depend largely on a milk diet, and must have a suitable and nutritious food to meet the various demands of the system.

Diseases conveyed by milk may be divided into three classes: 1.

Those in which the germs are introduced into the milk by being conveyed from the body of the cow: Foot- and mouth-disease, anthrax, tuberculosis, and acute enteritis. 2. Those in which the germs are introduced into the milk from outside sources, like typhoid and scarlet fevers, diphtheria, and cholera. 3. That caused by a poison developed in the milk, called tyrotoxicon—a poisonous ptomaïn from bacterial growth.

Tuberculosis is the most important disease for our profession to deal with, and this fact makes it all the more necessary that all persons should know that tuberculosis has followed the introduction of milk-cows into every nation or country that they have entered; and, furthermore, that the number of cases and death-rate of consumption have increased in direct ratio with the increase of cattle. Tuberculosis exists in every type and breed of cattle, and finds its easiest victims among those kept specially for milk-purposes. The homes of the wealthiest in the world, and the homes of the poorest, testify that our meat- and milk-supply cause thousands of deaths from this disease every day. Consumption is no respecter of wealth, and it is the cause of one-seventh of all deaths. If all the victims of consumption who die annually lived in one country, newspapers would be crowded with stories about the most dreadful pestilence that ever visited the earth. In regard to the annual mortality among men from consumption I wish to mention the number who die among some of the insured orders. We will take the Royal Arcanum assessments for May, June, and July of this year, 1897. I find, out of 157 deaths in this order for May, that 18 died from tuberculosis. For the month of June there were 123 deaths, and 19 of them caused by tuberculosis. For the month of July 120 deaths, and 14 of them from tuberculosis. Now, these deaths, gentlemen, are among what were supposed to be healthy men, and, as we would say, were examined as to soundness when initiated in the order. The question now arises, had they latent tuberculosis when examined, or how many contracted the disease after examination?

Contamination of milk from impure water is of frequent occurrence, for such water is used in washing milk-utensils. A milk-dish should never be washed with the ordinary dish-rag, nor dried on the dish-cloth, but there should be separate cloths for washing and drying. Milk is frequently contaminated by submersion of the milk-can or pail in unclean water for cooling. The quality of the water used for the cleansing and cooling of milk-cans and pails has received too little attention. Fecal contamination of milk during the process of milking is great.

Epidemics due to impure and unhealthful milk have certain characteristics. The peculiarities of these epidemics, whether they be gastro-enteritis, scarlatina, typhoid fever, or diphtheria are, first, that the houses in which the people are affected are scattered; second, the cases appear very suddenly, many cases each day; third, the milk-drinkers are more liable to become diseased; fourth, houses of the wealthy are more apt to become seriously invaded than those of the poor, because more milk is taken. One-half of the epidemics due to milk-contamination can be traced to sickness among milk-handlers or members of their families. That foot-and mouth-diseases can be communicated we have numerous well-marked instances; in the epidemic of 1884, that occurred in Dover, England, there were 125 cases from one dairy; very fortunately, we are practically free from this malady. The cases of acute enteritis and tuberculosis are legion; I know of two well-marked cases in my city from the use of milk from a tuberculous cow that I traced beyond the possibility of a doubt. In this city of Franklin, I am told there were a number of cases of typhoid fever traced to the milk from a dairyman's home. During the Montclair, N. J., epidemic 135 cases out of a total of 150 were among the drinkers of milk from a filthy dairy where the owner had had typhoid fever. In our neighboring city of Titusville they had a serious epidemic of diphtheria caused by a dairyman's milk containing the bacillus. We have positive evidence of scarlet fever being communicated, for, all that, its bacilli has not been recognized, if such it has, and have almost daily reports of poisoning by milk and its products from tyrotoxicon.

We find, as a review of this subject, that the cow-stables should be so constructed that there be not less than 1500 cubic feet of air space per head. The stable must be thoroughly ventilated. The windows must be large, numerous and movable. The floors should be of cement or vitrified brick; there should be sewerage from each stall. Every manger should be separate. Cattle should not stand in rows facing each other. There should be a separate room in which to do the milking, and a separate apartment in which the cattle must be cleaned, and this room should be at the farthest point from feed-bins and milk-room. Every cow when milked should be covered with a thin sheet, made so as to envelop chest, abdomen, and posterior extremities; the same attendant should milk the same cows, and the milker should be free from disease.

Every milkman should understand how to select good dairy cows, and he should have a fair sample of the cow's milk tested as to quality before purchasing. A cow need not be necessarily high-bred to be a good dairy cow. Pure-bred Jerseys are more dangerous from a tuberculous standpoint than any other breed. Only healthy cows should be used in a dairy, and every one should be subjected to the tuberculin test. Only healthy people should be employed in the stables and to care for the milk and its receptacles; special attention to the cleanliness of the clothing, hands, and finger-nails of all people connected with the milk production; no visiting of sick people by the dairy hands. The dairy buildings should be not less than one hundred feet from any building, and should be constructed on higher ground and built so as to have a separate water supply of the purest water; the milk-house should be constructed so that it can be most thoroughly cleaned and be free from cracks, crevices, and all sources of dust of every character. The use of long troughs to feed and water cattle should be abolished; the old-fashioned milk-ticket that may be in one house this week and in another next week, must be stopped. The present plan of drawing milk from a can with a tin measure which is exposed to all sorts of atmospheric influences should not be allowed.

The quality of the milk is controlled by the quality and quantity of the feed. The dairy cow should always be fed ground grain. I advise the spaying of every dairy cow for the following reasons: She will give milk of a better quality for several years, the quality of the milk does not change as it does from monthly œstrum and subsequent stages of gestation and parturition and its sequels. All milk should be graded and sold according to quality, which would, in my estimation, tend to check adulteration to a very great extent. It is hardly fair that a vendor selling a superior quality of milk from healthy cows kept in the best possible condition, so far as stable sanitation and best quality of food are concerned, should only be able to get the same price that the filthy vendor with diseased and unthrifty cows can obtain. The variation of milk from the different breeds as well as the variation in the quality of morning and evening milk from the same cow of any breed make the necessity of graded milk and price a matter of great import to the vendor as well as the consumer.

(To be continued.)

The New York College of Veterinary Surgeons has some thirty students this year, among them one young woman.

TUBERCULOSIS AND MILK-SUPPLY.[1]

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As compared with other diseases to which man is liable, the one which must be recognized as deserving the greatest attention from sanitarians, health-officers, and physicians is unquestionably tuberculosis, and no apology is needed for the giving of any facts, however small, which may add to our understanding of it or our power of preventing it. Tuberculosis, according to the best statistics, causes one-seventh of all deaths in man. It has destroyed more lives than all the wars and epidemics of cholera, smallpox, and yellow fever combined. That it is on the decrease seems to be unquestionable, but it is a matter of the greatest importance to examine into the causes of its great prevalence.

Of all diseases to which the animals from which we derive our food are liable, tuberculosis is also the most prevalent and the most far-reaching in its effects, and it seems not unlikely that there is a close connection between the prevalence of the disease in man and in our food-animals. If we examine into the geographical distribution of tuberculosis we will find that there is a close connection between the presence and absence of tuberculosis and the presence and the absence of healthy cattle. In Northern Norway, Sweden, Lapland, and Finland, where reindeer constitute the bulk of farm-animals; or about the Hudson Bay and in the islands of the Pacific, where no cattle exist; in the Scottish Hebrides, Iceland, and Newfoundland, where there are only a few cattle, tuberculosis is far less prevalent in man. In Algiers the cattle are few, and live for the most part in the open air, away from cities, and it is found that tuberculosis does not increase among the natives. In Italy, on the other hand, where cattle are housed, Perroncito states that tuberculosis has become the scourge of man and beast (Law.)

No disease known attacks more numerous genera of animals than does tuberculosis. The bovine species are the most susceptible, but the disease is found in chickens, guinea-pigs, swine, rabbits and goats, and less frequently in caged apes, lions, kangaroo, deer, elk, gazelle, antelope, birds, and, in one case noted by Dr.

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[1] Read before the American Public Health Association at the twenty-fifth annual meeting, Philadelphia, October 26-29, 1897.

Theobald Smith, a tame bear. Among the animals usually thought to be exempt, such as dogs, cats, sheep, and horses, the disease can readily be produced by inoculation.

It is, however, to the disease as found in milch-cattle that we wish to devote our especial attention in this paper. Professor Law states that in some dairy- and breeding-herds in New York, consisting largely of mature cows, there is found as high as 98 per cent. of tuberculous animals. In the State of Pennsylvania Professor Pearson has found herds in which every animal was afflicted by the disease. The disease, probably, did not prevail among American cattle to any extent, at least, until comparatively recent years. It has probably been developed by in-and-in-breeding, over-milking, breeding too young, overtaxing, and other weakening effects, as the effort to supply the increasing demand for milk in our rapidly growing American cities has become greater; although, no doubt, the chief means of increase has been by direct infection from animal to animal.

The statistics of 1890 show that the number of cows in the United States was 15,952,883, yielding a total of 6,750,000,000 gallons of milk, or about 100 gallons per capita for each inhabitant. Of this amount of milk only 5 per cent. is used as butter and cheese, the other 95 per cent. being consumed as milk in its natural state. If milk can act as a carrier of the tubercle bacillus what a fruitful source of the disease this enormous supply must be! It has also been found in butter by numerous observers, and has been shown to maintain its life in that substance for upward of one hundred and twenty days; likewise, cheese has been found to contain it, and it is known to live in this substance for as much as thirty-five days. So even the manufactured products of milk may convey the disease, and we can look upon the total amount of milk produced as a possible conveyer of the tubercle bacillus.

The danger from milk was first pointed out by Professor Klencke as early as 1846, who gave the clinical histories of sixteen children who had been fed from the milk of cows, some of which were stable-fed and some swill-fed, all of which pointed to tuberculosis either of the intestines, glands, skin, or bone. This virulence of milk was confirmed by Gerlach in 1869, and later by others. The discovery of the tubercle bacillus by Koch in 1882 proved the possibility of what these men had found to be true clinically, and in the same year both Virchow and himself pointed out the possibility of the danger of infection of milk by the tubercle bacillus.

Among those who have given further clinical evidence of infection by means of milk may be mentioned Dr. Stang, of Amorback, who mentions a case of a well-developed five-year-old boy from sound parents, whose ancestors on both sides were free from hereditary taint, who died after a few weeks' illness of acute miliary tuberculosis of the lungs and enormously enlarged mesenteric glands. A short time before the parents had had a milch-cow killed and found her the victim of advanced tuberculosis. Brouardel cites a case where five out of fourteen young girls living together in a boarding-school became consumptive subsequent to the daily use of milk from a tuberculous cow (Pearmain and Moor.)

Dr. Demme records a case of four infants in the Child's Hospital at Berne, without tuberculous ancestors, who died of intestinal and mesenteric tuberculosis, as the result of feeding on the unsterilized milk of tuberculous cows.

Professor Law states that after a lecture at Providence, Rhode Island, a gentleman of North Hadley, Mass., publicly stated that his only child, a strong, vigorous boy of one and a half years, went to an uncle's for one week and drank the milk of a cow which was shortly afterward condemned and killed in a state of generalized tuberculosis. In six weeks the child was noticeably falling off, and in three months died of tuberculosis of the abdomen. There was no tuberculosis on the father's side, but some on his mother's, although she herself was in perfect health.

Dr. E. O. Shakespeare attributes one-fifth of all deaths in infants and young children feeding on milk to tuberculosis, usually commencing in some part of the digestive organs.

Woodhead has recently stated "that from his experience in two large hospitals he has been much struck by the fact that in children who had died from other diseases during the course of tubercular disease of the abdominal gland there was frequently not any trace of tubercular disease in any part, thus pointing to the intestine as a channel by which the bacillus made its way into the body." He also remarks that in a large number of cases of general tuberculosis, where the possibility of infection by the pulmonary passages was evidently excluded, the tuberculous process appeared to have invaded the body by the intestinal canal. These facts, taken in connection with the occasional existence of tubercle bacilli in milk, went far to prove in his opinion that milk was a source of tubercular infection, especially in young children. Woodhead found that out of 127 cases of tuberculosis in children the mesenteric glands showed tubercular infection in 100, and that there was ulceration of the intestine in 43. It is especially in children that this mode of infection occurs. In the adult, ulceration of the intestine is rare as a primary infection.

Direct evidence of the infection of adults by means of milk is wanting, and we should expect to find in such cases that primary tuberculosis of the intestine would be a common manifestation of the disease; but such is not the fact as shown by clinical evidence. That such infection does not take place in adults more frequently may, perhaps, be accounted for to some extent, at least, by the fact that a strong, vigorous digestion seems in some measure to protect the consumer. Peuch fed a two-months pig in five days four and a half quarts of milk drawn from a tuberculous udder, and when killed after fifty-six days it was found quite sound. Four rabbits inoculated with the same milk all became tuberculous.

The infection of animals by means of tuberculous milk, either by ingestion or by inoculation, is beyond question, different observers all agreeing on the main fact; their percentages of successful inoculation merely being different. It was formerly taught, and is still held by some experimenters, that the milk does not contain the tubercle bacillus, and is therefore not infectious, unless there is coincident disease of the udder of the cow producing it. There is, however, very strong evidence against this opinion. Ernst found in 33 per cent. of the cows examined by him, in which a careful post-mortem examination was made, which showed that the animals were widely affected with tuberculosis, but that the udder was free from disease, that the milk contained the tubercle bacillus. In 1893 Theobald Smith showed that the tubercle bacillus may be present in the milk of tuberculous cows when the udder, so far as the naked eye could tell, was free from disease. Other observers have given similar results.

The most positive evidence, however, is given by inoculation-experiments. Hirschberger, by inoculation of rabbits in the abdominal cavity with the milk of 29 tuberculous cows, of which the udders were, or appeared, sound, produced tuberculosis 14 times. Bang inoculated from 63 tuberculous cows selected for their sound udders, and found the milk of 9 of them infectious. A subsequent microscopic examination showed the udders of 3 of these cows to be diseased, leaving 6 which gave infectious milk in which even after death no tubercle bacilli could be found in the udder. Ernst found 10 cows in 35 with infecting milk, though the udders were sound. Of 103 animals inoculated, 17 contracted tuberculosis, and of 12 calves sucking the cows, 5 became tuberculous. Drs.

Smith and Kilborne found the milk infecting in 3 cows out of 6 with apparently healthy udders. Forty-four per cent. of the guinea-pigs inoculated contracted tuberculosis: 1 in 5 from one cow, 8 in 10 from another, and 6 in 6 from a third. Professor Law gives his experience that 3 calves from healthy parents, sucking the apparently sound udders of 3 cows with general tuberculosis, all contracted the disease. Galtier found, by inoculation, that milk may prove infectious in 60 per cent. of cases, and that the infectious qualities are greatest in lesions of the udder, and next with those affected with general tuberculosis. Baumgarten, Fisher, and Wesener, in their food-experiments were especially impressed with the resulting tubercular lesions of the intestinal mucosa, mesenteric glands, and liver.

It is also known that the primary seat of tuberculosis in children is so frequently in the intestines and their related glands, and milk forms so large and essential an element in the food of children, that we cannot avoid the conclusion that it is to them a frequent source of infection.

Dr. Russell, Health-officer of Glasgow, is so impressed with the danger of tubercular infection by milk that he regards the supervision of the milk-supply as of at least equivalent importance with the regulation of the expectoration of consumptives and as being a much more practicable matter of sanitary administration. He says: "There is no need for argument in reference to the milk of tuberculous cows. The facts are so universally accepted, and so grave, that the administrative effects shine through them. It is practically the Glasgow position—that a tuberculous cow must not be retained in a dairy. There is a remarkable consensus of opinion as to the influence of milk in disseminating tuberculosis, especially among the young. The pathologist finds that of the total deaths under ten years of age among the mass of people, about a third are due to tuberculosis, and the usual seat of the disease at that age points to food as the medium of infection. The prevalence of tuberculosis among dairy cows is notorious."

Dr. Martin, in the report of the Royal Commission on Tuberculosis, writes: "The milk of cows with tuberculosis of the udder possesses a virulence which can only be described as extraordinary; all the animals inoculated showed tuberculosis in its most rapid form." Dr. Woodhead, investigating for his own purposes the effects of unboiled milk, speaks in similar terms of this virulence of milk derived from tuberculous udders and inoculated into test-animals.

These two observers examined the milk from a cow in which one-quarter only of the udder showed tubercular disease. They found the milk from the other three-quarters perfectly harmless on inoculation, but the milk taken from the four teats was to all appearances just as virulent as the milk from the diseased quarter. Butter, skim-milk, and buttermilk obtained from the milk of a cow with tuberculous udder all contained tuberculous matter, actively injurious to test-animals. Dr. Woodhead calls attention in the same report to the rapidity with which tuberculosis of the udder spreads, and states that in cows constantly under observation he had noticed on several occasions during the interval between the fortnightly inspections carried on along with a veterinary surgeon, that the disease had become distinctly developed. He says: "It may be, of course, that the early evidence has been overlooked at the previous inspection; but whether this is the case or not the spread of the disease is so rapid as to afford very good ground for alarm. The very absence of any definite sign in the earlier stage is one of the greatest dangers of this condition." Both Dr. Martin and Dr. Woodhead insist that no tuberculous animal of any kind be allowed to remain in a dairy.

The identity of tuberculosis in cattle and in man seems to be beyond question, although the manifestations of it may differ at times to a great extent. A few cases showing dircet transferrence of the disease from cattle to man by inoculation may be quoted.

Tscherming, of Copenhagen, attended a veterinarian who had cut his finger in making a post-mortem examination upon a tuberculous cow. After healing, the wound began to ulcerate, and the finger was finally removed. Microscopic examination revealed a tuberculous process with the presence of the tubercle bacilli.

Pfeiffer attended a veterinarian thirty-four years of age, with a good constitution and without hereditary predisposition, who cut his thumb in making a post-mortem examination of a tuberculous cow. The wound healed, but six months later the cicatrix still remained swollen, and in the fall of the next year the man developed pulmonary tuberculosis, bacilli were found in his sputum, and death occurred two and a half years after the wound. Post-mortem examination revealed tuberculosis of the joint of the wounded thumb.

Professor Law quotes a case of a young veterinarian, a friend of his, who was inoculated in the hand while opening a tuberculous cow, and who suffered from a tumefaction of the resulting cicatrix, which showed tubercle bacilli.

To these cases may be added one which came under the observation of the writer recently. Dr. E., a veterinarian of Downingtown, Pa., cut the knuckle of his forefinger while making a post-mortem examination of a tuberculous cow. The wound healed badly, remained swollen, and showed decided tendency to ulcerate. Removal of the cicatricial mass was practised and the tissues sent to me for examination. They showed typical tubercular lesions, with giant-cell formation.

Further evidence is given by the condition of our Northwest Indians. Dr. Holder, in the *Medical Record*, gives the Indian mortality from consumption as 50 per cent. of all deaths, at Green Bay, Wis., Tulalip, Wash., and Western Shoshone, Nev. He says that at Lower Brulé, Dak., scrofula is present in 60 per cent. of the Sioux under twenty-one years, and that at Crow Creek, Dak., 50 out of a total Indian population of 1200 die yearly of consumption and scrofula. The animals furnished to these tribes are said by Dr. Treon, an American practitioner, to be poor, emaciated, and diseased. He describes how they eat liver, tallow, and entrails, raw and fresh, and how the carcass is dried, pounded, and packed in the skins to be eaten later without cooking. The meat is eaten, even though the animal may have died of disease. (Law.)

Although it is manifestly impossible to try direct inoculation from animal to man, corroborative evidence may be had by inoculating animals from man. This has been done in numerous cases, only one of which, given by Professor Crookshank, will be quoted. He obtained sputum containing numerous bacilli from an advanced case of phthisis, the sputum was shaken up with sterilized salt-solution, and injected into the peritoneal cavity. The calf showed illness in a few weeks, did not feed well, and had a slight cough. These symptoms increased, and death occurred forty-two days after inoculation. Extensive lesions were discovered at the post-mortem examination; extending over the mesentery from about the point of inoculation were hundreds of wart-like, fleshy new-growths. There were similar deposits on the under surface of the liver, the spleen, in the gastro-splenic omentum, and on the peritoneal surface of the diaphragm. Microscopical examinations of the sections revealed minute tubercles disseminated through the whole section of the lungs and liver, and tubercle bacilli were found in these and in the peritoneal deposits. The calf died of pyæmia, but sufficient time had elapsed for marked local infection leading to generalized miliary tuberculosis.

For the past year the writer has carried out experiments bearing on the subject of milk-infection, under the auspices of the Live-stock Sanitary Board of the State of Pennsylvania at the Veterinary Department of the University of Pennsylvania. Five grade-cows which reacted to tuberculin and showed physical signs of tuberculosis were obtained, the udders in every case being free from disease as far as a careful inspection could reveal. The cows during the experiments were kept under the best sanitary condition, were carefully fed, groomed every day, and given as much outdoor life in a paddock in the yard as possible. Guinea-pigs were used exclusively, and the method employed was intraperitoneal injection. The milk was in no case centrifugalized; on the contrary, the whole milking was thoroughly shaken together before being used, the idea being to approach as nearly as possible the conditions which would be obtained from ordinary dairy milk. A single dose averaging 10 cubic centimetres was given.[1] The results were as follows:

SERIES A. Fifty pigs were used in this experiment, eighteen of which died within a few days of the injection, too soon for any signs of tuberculosis to have manifested themselves, and one was lost. Subtracting these, and considering only those which lived long enough for the disease to have become manifest, we have left thirty-one animals, four of which were unquestionably tuberculous, a percentage of 12.9.

SERIES B. Thirty pigs were used in this experiment, six of which died before tubercular lesions could have become manifest. Subtracting these, we have left twenty-four animals, five of which were unquestionably tuberculous, a percentage of 20.8.

SERIES C. Eight pigs were used in this experiment, and the milk of a single cow was employed. One pig became tuberculous, a percentage of 12.5. Eighty-eight animals were employed in these three series of experiments. Deducting those which died too soon after inoculation to show tubercular lesions, we have as a final result that 15.4 per cent. of the animals became tuberculous from the single dose of milk. In all cases the most healthy pigs were selected, and the experiment ended with the death and careful post-mortem examination of the animal.

SERIES D. In this experiment fifty-two pigs were used. Two were inoculated daily with mixed herd-milk, and two with the same milk after sterilization by heat. None of these animals became tuberculous. It has not seemed proper to include this series with the others, but the figures are given for the sake of fairness, and also because of the interest they bear. When this experiment began the cows had been under treatment about eight months, the treatment consisting in the use of large injections of tuberculin (5 to 10 c.c.) on an average of every three weeks. All had improved very much, and one had gained more than 100 pounds in weight. In these experiments it must be remembered that no attempt was made to collect the bacilli in a small quantity of fluid, but, on the other hand, they were distributed as thoroughly as possible before the inoculation.

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[1] The tables will be published in full in the Journal of the American Public Health Association. Only the final results are here given.

From these and other like experiments it is fair to conclude that the number of bacilli in the milk of tuberculous animals varies from day to day, although it is possible that in taking 10 c.c. from the whole mass of milk, we may have missed bacilli which were few in numbers. Additional evidence has also been given to show that the bacillus of tuberculosis may pass into the milk of cows having general tuberculosis, but whose udders are perfectly healthy, so far as the most careful examination by competent veterinarians can show.

I have given in these pages only a part of the evidence that is at hand on the question; but enough has been said, I think, to show the soundness of the conclusions arrived at by the Royal Commission on Tuberculosis, that,

. . . . "As to the proportion of tuberculosis acquired by man through his food or through other means, we can form no definite opinion, but we think it probable that an appreciable part of the tuberculosis that affects man is obtained through his food."

And "No doubt the largest part of the tuberculosis which man obtains through his food is by means of milk containing tuberculous matter."

The remedy lies in the careful inspection of milch-cows and the immediate weeding out of all diseased animals found. Milk from suspected cattle should be carefully sterilized before using, and especially should not be given to infants and invalids. The inspections of the animals should be at intervals frequent enough to keep the disease from gaining headway before being discovered.

McKillip Veterinary College reports a total number of students of thirty-two in the several classes. This is a very gratifying increase over the past two years, and points strongly to the increased interest in veterinary matters in the West.

THE CLOSE RELATIONSHIP EXISTING BETWEEN THE VETERINARY PROFESSION OF TO-DAY AND ORGANIZED SOCIETIES FOR THE PREVENTION OF CRUELTY TO ANIMALS.[1]

By W. H. Dalrymple, M.R.C.V.S.,
BATON ROUGE, LA.

I can assure you I feel highly honored by the invitation extended to me, through your local committee, to address this convention of workers in such a noble cause as that of endeavoring to prevent and alleviate the sufferings of nature's dumb nobility.

Statistics with regard to the beneficent results, the world over, of the great and good work of this and kindred associations must be familiar to most of you; consequently, this impressive side of the work I do not propose touching upon, but will confine my remarks chiefly to that important branch of the subject suggested by the caption of my paper.

On account of my devotion to that noble branch of medical science of which I have the honor of being a humble representative, I trust I may be pardoned should my effort, on this occasion, appear to savor somewhat strongly of veterinary professionalism. It is a fact, however, that the modern veterinary profession is as yet but slightly known in many parts of this country, and is in consequence indifferently appreciated. We are constrained to the belief, however, that when the hand of Time has fallen upon its endeavors to right the wrongs of past ages, the dark doings of empiricism, superstition, and cruelty will yield to the photophobic influence of the light of education, reason, and intelligence.

I have been impressed with the idea that the beautiful lines of the poet Burns, parodied to read: "Man's inhumanity to his dumb servitors makes countless thousands mourn," would make a fitting motto for a humane society, and one which should be impressed firmly upon the mind of everyone, but more especially the young and rising generation, because the earlier the impressions made the more lasting are they; not, perhaps, as the outcome of reasoning, but as the result of implicit belief and faith in the maxims taught in early youth.

There can be no doubt that one of, if not the greatest, clogs to the wheels of the progress of the work of our humane societies is ignorance on the part of our people, and indifference, which is born of the former; and in order that the acme of our desires may be reached in seeing the day when the physical infirmities of those dumb but noble creatures which God has given us to lighten our daily routine of work, or contribute to our pleasures, have been respected and considered, we must look to education for the accomplishment of this great end.

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[1] Presented to the Convention of Humane Societies at Nashville, October, 1897.

Where, it might be asked, should this education commence? It is my conscientious conviction that the nursery is the first school in which the seed should be sown, and that the cultivation and fertilization of that seed should be undertaken by every school, whether public or private, in the land. There should be a grounding in physiology, for the purpose of impressing upon the student the normal functions of the various important organs of the animal economy. Attention should also be given to pathology, elementary, if you will, to illustrate the results produced by a deviation from the normal standard of health, and the simpler causes by which these conditions are brought about; a somewhat simple but impressive course of instruction in the physiology and pathology of that system of nerves known as the cerebro-spinal, for the purpose of illustrating the effect of nervous irritability, both direct and reflex; in other words, elucidating the phenomena of pain.

The education of the youth along these lines would, it seems to me, tend to aid very materially the noble work for which our humane societies were organized, and ultimately to decrease the necessity for their existence.

There is another school in which is gained a more intimate knowledge of comparative anatomy, physiology, and pathology that might help along very considerably the humanitarian work. I refer to our medical colleges. It is unfortunate, and I speak it with all due respect, that no little ignorance prevails, at the present day, among members of the medical profession regarding the closeness of the analogy that exists between the two branches of medical science. The result is that but limited assistance to the cause can be expected from that source, not, of course, from lack of desire, but from want of confidence, due to insufficient knowledge of such analogy. If our medical institutions would enlarge their field of teaching in the broad subject of medicine, so as to include comparative studies, of even an elementary character, our practising physicians, armed with a more or less intimate acquaintance with the subject, would then be able to exert a wholesome influence on the public in this regard and give more emphasis and weight to the value of the humanitarian work of our associations.

With regard to the influence the veterinary profession has, or ought to have, in this direction, it might be stated that all graduates of the modern schools are, in virtue of the profession they represent, honorary members of humane societies, if not actually enrolled as such, and are tacitly understood to exert their influence in the cause of humanity in its application to the lower animals.

I claim, then, that the profession of modern veterinary medicine and surgery has the power to be, and in fact is, one of the most potent factors in the education of the people along the lines we have just been considering; and it may be of interest for us to consider, for a few moments, the ground upon which such a claim is based.

Before proceeding with this part of my subject, however, I would like to emphasize the fact that there are many forms of cruelty perpetrated on the lower animals, inadvertently, it may be, and without any cruel intent, but through gross ignorance of the conditions involved. As an illustration of this, I might quote the saying "killed through kindness," and it is true that a great many animals are often subjected to excruciating pain from what might be called "mistaken kindness." For instance, it is a common experience for the veterinarian to be called to relieve the sufferings of some poor animal the victim of over-feeding and its sequelæ: indigestion, irritation, and inflammation of a portion of the alimentary canal. These pain-producing conditions are frequently brought about through mistaken kindness, the result of a want of knowledge regarding the laws of nutrition. It must be borne in mind that there is a limit to the digestive and assimilative powers; and if we, through ignorance or indifference, indulge to excess with food, animals, which have not the intelligence nor the power to say, "Hold, enough," to the point of over-taxing the organs of digestion and producing the agonizing paroxysms we are often compelled to witness, we are, I think, to some extent at least, guilty of cruelty, because such a condition of affairs could be prevented.

Another form of cruelty seen daily on our city streets and thoroughfares, and which we cannot but believe is largely the result of ignorance, is the using of lame horses. Lameness may be defined to be the expression of pain in the act of progression; and as we cannot possibly impeach that noble animal with being guilty of deception, especially to the point of exhibiting signs of pain when not actually in existence, whenever any irregularity of gait is shown it indicates suffering—of course, I allude here to animals that are free from structural deformities—yet we find many people in the enjoyment, seemingly, of unbounded happiness, pleasure-riding behind a poor animal suffering, it may be, very acutely.

Cruelty in another form may be witnessed in many rural sections of the country during the winter season of the year, but which, I opine, escapes the observation, in some measure at least, of the ordinary lay individual. I have been in the position to see and read reports from correspondents of State Departments of Agriculture as to the health and condition of live-stock, and have been overawed at the enormous mortality resulting from actual starvation during the months of winter severity. On almost every report could be seen: "Stock dying from starvation." Now, I do not presume to say that this deplorable state of affairs is occasioned by any positive intention of cruelty, yet I can find no other fitting appellation for it. I claim that anyone possessing an animal, or a number of animals, who does not provide the necessary comfort, in the form of food and shelter, during the extreme seasons of the year, is guilty of an overt act of cruelty; and this also applies where a greater number of animals are kept than can be properly provided with the common comforts of animal life.

There are many other species of cruelty perpetrated on the lower animals, through a lack of education and knowledge, that might be alluded to; but as time will not permit of an exhaustive paper on such an inexhaustible topic, I will be compelled to forego discussion of them on this occasion. The references made may, however, I trust, be the means of awakening special interest among owners themselves with regard to those conditions which inflict forms of cruelty through neglect and indifference, but which may as yet be without the pale of the influence of our humane societies.

(To be continued.)

THE VALUE OF EXERCISE.[1]

By J. Curtis Michener, V.S.,
COLMAR, PA.

I come before you this evening more for the purpose of apology than to fulfil the appointment with which you have honored me. By a misunderstanding I expected this meeting to occur upon the last Tuesday of the month (26th), and had not commenced the preparation of a paper when receiving notice last Saturday.

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[1] Read at the Keystone Veterinary Medical Association, October, 1897.

The time being so short, and having so much else on hand, I have merely scribbled off a few thoughts. I beg you to excuse the effort and the seeming impertinence of addressing a body of medical men upon the value of exercise, when it is already conceded by you all. It is not lack of knowledge so much as failure to practice, that has convinced me that our profession, and medical brothers as well, need severe criticism. Exercise out in the open air and sunlight is the most essential requisite, even necessity, to that robust health we all admire, and which gives the keenest appetite and enjoyment. By exercise the circulation and respiration are accelerated and deepened. The skin is made to glow and perspire, and tone and strength are given every organ. Daily exercise is necessary to promote the secretions, excretions, and exhalations. When neglected, stagnation and impurity begin, and, if habitual, disease is invited and life shortened. It is a fortunate provision of nature that most of us are compelled to be active, and she imposes a just punishment upon those who subsist upon the labor of others. Examples of the truthfulness of these statements are to be seen upon every hand. Indeed, they are so common and universal that we look upon them without seeing, and experience without realizing.

Sex makes but slight natural difference in health and strength, but our countrymen are far superior to the women in strength and health (in spite of rum and tobacco), simply because the women do not get the invigorating sunlight and pure air exercise. Many of your city chaps are quite effeminate from the same causes. I think I have done enough preaching, and will get down to veterinary practice.

Exercise has a hygienic and therapeutic value, both of which need to be better understood and utilized. It is impossible for any animal to long remain in a hardy, healthy condition, at the height of capacity and transmit a vigorous constitution, without regular and abundant exercise. Many a poultry man has come to grief by building warm quarters and keeping his stock too closely confined, instead of allowing them to forage around and scratch for a good part of their living.

Many think the only proper place for a hog is in a pen, which does seem to answer for the brief period that the average porker is allowed to live. But the breeder of swine who practises that system is sure to meet failure.

Cows stand confinement the best of any farm animals. In some instances they never leave the stall during the winter months, and appear to do very well, but their stock of vitality is necessarily much reduced, and ofttimes the way is paved for trouble and loss in the future. I was gratified to learn that Miller & Sibley's fine herd of Jerseys, which we so recently visited, have to walk one and a quarter miles up into the mountain to obtain their water every day of the year, and are driven around for exercise besides when not at pasture. That is rational treatment, and results in good health and staying qualities. Our horses suffer much from want of and irregularity of exercise. Strange it is that so many intelligent men suffer their horses to stand tied in the dark stable for several days in succession, and then require a full day's work, and wonder why they get sick and go blind.

It is of the therapeutic value of exercise that I feel moved to speak in particular, because our literature and practice indicate that its value is not recognized. Many abnormal conditions are the direct result of the lack of judicious exercise, and are most successfully removed by attention thereto. Swollen sheath and legs are better, more quickly and permanently cured by exercise than a resort to physic. Lymphangitis (after paying attention to the slight abrasion about the foot or leg, which can usually be found) should be cured by exercise. Greasy heel is very amenable to treatment when the patient is regularly worked.

The horse with strangles should never quit work, and he will make a far quicker and better recovery than if closely housed and drugged. The same applies to influenza. During our great epizooty the horses that were kept going did by far the best, while those closely stabled suffered the complications and relapses. When you have a case of dumb staggers see to it that he be made to work in the cool part of every day. In the winter freeze and work it out of him. In the early or congestive stage of laminitis blanket warmly and give prolonged exercise in a grass field while wet with dew. Chronic laminitis that has not resulted in much disorganization should be treated the same way. Pull his shoes off and put him to plowing in the furrow. Drive him on the muddy roads and in the snow. Atrophy of muscle is cured by putting to use, of course. Congestive pneumonia and chill are readily cured by warm clothing and exercise. Impaction of the bowels will usually yield to a three or five mile gallop. I do not expect many of you to adopt this treatment in these days of eserine and barium chloride, or to keep a case of flatulent colic moving, and lose the glory of performing paracentesis abdominalis. But do, please, exercise an ordinary case of indigestion in horse, or man, or cow.

I now wish to urge my panacea in cases of azoturia, knowing beforehand that many of you think it strongly contraindicated. We know that exercise provokes the attack; we also know want of exercise precedes and predisposes to the attack. I know that enforced continuous exercise will cure an ordinary case completely in a few hours. I never lost a case that was reached before going down. Bear in mind that this is a congestive disease. The blood has become thick and surcharged with impurities *from want of exercise.* The subject is taken from the stable feeling good. The atmosphere is damp and chilly. The skin is contracted. The capillary circulation is restricted. Exercise puts the heart to work rapidly and powerfully. The circuit becomes impeded. Heavy congestions of muscles, usually of the loins and shoulder, often becoming as hard as a board, take place, causing pressure upon the nerves, pain and approaching paralysis. If the patient be stopped in the early stages, sheltered and warmly clothed, this congestive process may be arrested and gradually overcome. I cannot speak from experience, as our practice has always been to rub the affected parts with strong turpentine liniment, clothe warmly, and keep in motion until the danger-point is passed, which is usually within two hours. I will relate a case as an illustration. While a young man at home, my father owned a fast trotting young mare. He started on a trip to Boston, to be gone ten days. A deep snow had fallen, and as I took him to the depot, his last stern command was: "Don't take Polly out while I am gone. She will jump into some of these drifts and upset, and I would not have her run away for five hundred dollars." Sunday came, and wishing to give my best girl a sleigh-ride with the best horse, I could not resist the temptation. The mare felt good, and just flew along like a bird for the first mile and a half, when she commenced to slacken, step short, and quiver in the flanks and shoulders. Awful visions of paternal wrath flashed across the horizon of my frightened imagination. No time to lose, I sprang from the sleigh, stripped off the harness, put on blankets and robe, and tried to lead her; no go. Took the lines behind her, and with whip in hand cut her around the legs without mercy. Every few steps it would seem she must go down and all hopes go down with her. Renewed chastisement would send her on again. When about half-way home I was more than gratified to notice some improvement; by the time home was reached she walked much better. I continued to move her along the warm side of barn one hour longer, when she was entirely relieved. Have worked that plan in many cases with complete and speedy success. A case of azoturia should never stop moving until well. If stopped, they go down, and if once down usually die. Judicious exercise is very beneficial to the convalescing cases of about all diseases except diarrhœa and pleurisy.

Sunlight is a great source of invigoration. We should give our patients sun-baths protected from the winds. We should always bear in mind that no animal can have perfect health, or be restored when sick, if confined in a dark place without exercise.

ACUTE INDIGESTION IN THE COW.[1]

(*Synonyms:* Plenalvia; Grain-sick; Maw-bound.)

BY W. H. RIDGE, V.M.D.,
TREVOSE, PA.

Indigestion in the cow takes many forms, owing to the large size and divisions of the stomach, which need no description here. It is not our intention to consider indigestion in all of its phases, but will confine ourselves to one—the engorgement of the rumen with rich or soft food.

With all care, many cows die from eating too much feed; getting loose, they gain access to the feed-bin, eating a great quantity of meal—sometimes as much as two bushels; or escape into a cornfield, or an orchard, or eat large quantities of potatoes, cabbage-roots, etc. This trouble has been described by our oldest writers, and we do not expect to give anything new, but to bring the subject up for discussion.

Of course, the cause is a voracious appetite, together with a stomach so large as to be capable of holding an immense quantity of food, and the opportunity of filling it.

I know of no disease in the cow in which the symptoms vary more than in this complaint, the result depending on the amount of food ingested and the power of digesting large amounts, the physical condition, and the care of the animal after engorgement. Sometimes the symptoms are very acute, and appear soon after eating; others not for, perhaps, two or three days. If the food be of easily fermenting character, the symptoms develop much sooner. In those cases that develop soon, tympanites is the chief trouble, with its train of symptoms—neck extended, as if trying to vomit, very uneasy, bellowing, and becoming frantic. If badly swollen, these cases soon die from asphyxia if not relieved.

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[1] Presented before the Keystone Veterinary Medical Association, October, 1897.

Another animal may show no signs of sickness for twenty-four to thirty hours after eating a large quantity of rich food, except, perhaps, a fulness of the abdomen. During this time, if closely watched, it will be noticed that the animal is sluggish and not eating as freely as the remainder of the herd. The first thing the owner will notice is the loss of milk—the animal milking well at night, and found dry in the morning, with a profuse diarrhœa. In a few hours it gets down, and is unable to rise, making one think it paralyzed. Or, perhaps, the bowels are torpid and have no evacuation for the first day, the animal grunting when moved; nose dry, with suppression of milk, as in the other phase of the trouble.

The respiration may lead you to think you have a case of pneumonia, or of chest-trouble; but a careful examination of these parts will exclude these. The rumen has a doughy feel, and pits on pressure, and is seldom, in this stage, tympanitic. Rumination is suspended; the appetite lost; the body becomes cold, and the pulse feeble and frequent; the breath often fetid. When fermentation is present you will get a tympanitic feel over a doughy mass. The animal gets down, mostly on the right side; eyes turned back, and dies in spasms.

These cases are not so difficult to diagnose as when we have diarrhœa, suppression of milk, and down and unable to rise, with no history. I have seen several mistakes made in this one condition.

The diagnosis is to be made from paralysis œstrum, eating frosted food, parturient apoplexy, pneumonia, choking, tubercular diarrhœa, impaction of the third stomach or omasum, poisons, volvulus.

The termination is, of course, according to the amount ingested and the manner of treatment. Most animals recover, but lose the milk until the next calving.

The lesions are those of inflammation of the bowels and asphyxia, and sometimes rupture of the bowels, with a large amount of food, the lesion depending upon the length of time before death.

When first in practice I was led to believe that the animal should have a purgative; but after trying this mode of treatment for a while, and many, too many, dying, I began trying to find other treatment which would give me better results. I well remember a stable of cows that twenty-four hours before got into an orchard and ate as many apples as they wished; three-fourths of the animals were down, purging, and unable to rise, groaning and at times struggling. It happened at night, and I had only a colic-mixture with me. Not having any choice, I dosed each with it, when they all recovered without the trouble I experienced before. I have watched my cases since, and am decidedly opposed to giving physics to commence with. I allow frequently small quantities of water, and give internally a fever-mixture with nux vomica. One that I have used with success is: ℞.—Tr. aconiti, ʒj; tr. belladonn. ʒij; sulph. cinchonæ, ʒij; tr. nux vom. ʒiv; spt. nitr. dulc. q. s. ℥ij. Sig. Teaspoonful every hour or two hours, as case needs. As soon as the diarrhœa commences, and the animal is in pain, or as soon as pain manifests itself, give ℞—Ether. sulph. 6–48; tr. asafœtida, 6–48; spt. camph. 3–24; ext. cannabis Ind. fl., 3–24; ol. pep. menth. ⅛–1. Sig. Tablespoonful doses, diluted; or alternate these remedies, and the purgative will be rarely needed in this condition. Of course we are not to mistake an impaction of dry material, which will need a brisk purgative, and we will consider these cases at another meeting.

INTERESTING TUBERCULIN REACTIONS.

By F. S. Schoenleber, M.S.A., D.V.S.,
ASSISTANT STATE VETERINARIAN, M'KILLIP VETERINARY COLLEGE, CHICAGO, ILL.

During the month of September, 1897, the attention of the State Board of Live-stock Commissioners was called to a herd of dairy-cattle at Hebron, Ill. From the fact that the owner had "lost half a dozen cows during the summer," and from the condition of the remaining portion of the herd, it was evident that tuberculosis was present, although it could be detected in but, perhaps, two or three cases. A tuberculin test was therefore instituted October 26–28.

There were thirty-five milch-cows in the herd, all grade Holsteins and short-horns. Thirty-two were kept in two separate barns. No. 1 contained seventeen head; No. 2 fifteen. The sanitary conditions were, however, quite different in the two cases: barn No. 1 was so filthy that every time an animal moved the slush would ooze out from between the boards of the floor, while barn No. 2 was well kept and comparatively quite clean. Of No. 1, fifteen out of seventeen reacted, or 88.2 per cent.; while of No. 2, only ten out of fifteen, or 66⅔ per cent., gave evidence of the disease. Whether the percentage of the animals affected in the incipiency of the disease in the two barns in this case had any connection with or relation to the sanitary conditions, of course, cannot be positively stated; however, it looks very suspicious, as there was more or less irregularity in the temperature of nearly all the animals in barn No. 1. The reactions in No. 2 were nothing out of the ordinary. In No. 1 the most conspicuous were the following three:

No. 482, short-horn, weight 1050 pounds; temperature before injection, Oct. 27: 10.30 A.M., 102.1°; 2.30 P.M., 102.2°; 5 P.M., 102.2°. Injected at 7.30 P.M., Oct. 28th; 8 A.M., 106°; 10 A.M., 105.4°; 2 P.M., 98.1°; 4 P.M., 100.2°—maximum increase of 3.3°.

No. 487, short-horn, weight, 1100 pounds; temperature, Oct. 27th, 10.30 A.M., 101.4°; 2.30 P.M., 100.4°; 5 P.M., 101.2°; Oct. 28th, 8 A.M., 104.3°; 10 A.M., 104°; 2 P.M., 102.2°; 4 P.M., 102°—maximum increase of 2.4°.

No. 492, short-horn, weight 1150 pounds; temperature, Oct. 27th, 10.30 A.M., 102°; 2.30 P.M., 101°; 5 P.M., 101.2°; Oct. 28th, 8 A.M., 103.2°; 10 A.M., 104.3°; 2 P.M., 102.4°; 4 P.M., 102°—maximum increase of 2.3°.

The animals were all treated alike; injected at 7.30 P.M., Oct. 27th, and watered at 12 M., Oct. 28th. In No. 482 the temperature at 5 P.M., before injection, was 102.2°; the following morning at 8 o'clock it was 106°, and at 2 P.M., six hours later, it had fallen to 98.1°, or nearly 8 degrees, an average of over one degree per hour for six hours. The deviations from the regular reaction in Nos. 487 and 492 were not quite so great. The condemned cattle (the whole number which reacted) were shipped to the abattoirs at the Chicago stock-yards November 2d and slaughtered under the direction of the State Veterinarian, Dr. C. P. Lovejoy, and the State Board of Live-stock Commissioners, and through their courtesy the autopsies were held by the senior class of the McKillip Veterinary College under the immediate supervision of the dean. The results showed the disease in all in various stages of development, from the localized miliary tubercle in the lung-tissue, or lymphatic gland, to generalized tuberculosis in the viscera and glands, Nos. 482, 487 and 492 presenting no post-mortem deviations from the average of the herd; merely localized tubercles in the lungs and lymphatic glands.

The cows were all in fair flesh, considering the scarcity of pasture during the summer. Gestation had advanced from one to about eight months in most of the herd.

The peculiar deviations in the above temperatures led to a very careful ante- as well as post-mortem inspection; but no further lesions were detected in either. It is regretted that circumstances were such as to prohibit the taking of the temperature in No. 482

for some days following the test. In the face of all the difficulties, however, the results indicate to a great degree how far the test may be relied upon in doubtful or irregular cases, and a study of the thermal lines in the chart made from the temperatures of the animals of the different barns certainly shows a debilitating influence at work somewhere in the system of animals from barn No. 1, due, no doubt, to the filthy condition of the surroundings.

CYSTIC DISEASE OF THE ANTRUM.

By J. L. Clark, V.S.,
STRATFORD, CANADA.

Subject: Bay gelding, two years old, blooded. Symptoms, enlarged condition of frontal and superior maxillary sinus upon left side of face (the frontal presenting the most prominent appearance midway between the eye and the median line). Difficult breathing, watery discharge from the left eye, muco-purulent discharge from corresponding nostril, of fetid odor. Upon percussion, a hollow sound was emitted.

Treatment. Animal cast in usual manner; a longitudinal incision was made upon the most prominent eminence; the periosteum was carefully divided, a blunt knife used to separate it from the bone, the trephine then being used; after removing the bone a well-filled sac of a bluish-gray color protruded through the opening; after puncturing and evacuating a portion of the fluid it was deemed necessary to make another opening at the lower border of the sinus, which was done, so as to allow drainage, the sac again being punctured, from which came a muco-serous discharge containing numerous large blood-clots.

The sinus was then carefully scraped with a bone-spoon, and all foreign substance removed; the superior incision was carefully drawn together and sutured, the inferior opening plugged with a pledget of tow dressed with the following injection: Alum pul., ℥ss; tr. iodine, ʒij; aqua, Oj; one tablespoonful of the above solution in a cup of distilled water injected into sinus twice daily.

After treatment for four weeks the animal made a good recovery, and to-day is all right, the only visible signs being two small longitudinal incisions.

ABSTRACTS FROM FOREIGN JOURNALS.

GERMAN.

Under the Direction of J. Preston Hoskins, Ph.D.,
PRINCETON, N. J.

Number of Veterinarians in the Different European Countries.—The Minister of Agriculture in Italy has published some interesting statistics in regard to this subject, from which Müller gives the following table in the *Archiv für wissenschaftliche und praktische Thierheilkunde*, vol. xxii., No. 6:

Countries.	Total No. of veterinarians.	*One* veterinarian to square kilometres.	*One* veterinarian to number of horses.	*One* veterinarian to number of cattle.
Belgium	495	60	570	2,793
Bulgaria	48	2014	9038	36,874
Denmark	475	81	864	3,571
Germany	3516	153	1093	4,993
France	3389	129	1028	3,835
Greece	17	3830		
Great Britain	2698	116	639	3,290
Holland	437	75	623	3,506
Italy	2561	112	622	1,868
Luxemburg	23	112	719	3,459
Norway	123	2620	1227	8,153
Austria	957	312	1678	9,032
Portugal	88	1058	2263	7.931
Roumania	133	985	4517	18,595
Russia (excluding Poland)	853	5037	20961	28,427
Russian Poland	72	1554	....	38,188
Sweden	310	1422	1598	8,013
Switzerland	571	71	182	2,071
Servia	45	1080	3666	18,394
Spain	3432	146	599	646
Hungary	732	444	2388	6,655

—From *Tijdshrift voor Veeart seneikunde en Veeteelt*, vol. xxii., No. 2.

A Case of Traumatic Emphysema.—On October 18, 1896, I was summoned by a farmer, who informed me that one of his cows was so inflated that he, for fear that she might suffocate, had punctured the right side with a trocar found in the neighborhood. As absolutely no air escaped, he punctured the left side. A great quantity of air escaped, but the cow still looked as if she had been "blown up." I arrived about three hours after this operation had been performed, and the enormous size of the animal was very striking. The expresssion, "blown up," exactly characterized her appearance. On the right and left side of the abdominal cavity the round edges of a wound, matted with bloody hair, were plainly visible. On the right side beneath the point of puncture a strip of skin as broad as the hand had been raised up (inflated). This strip ran up over the back from just beneath the shoulder-blade and along the left side from the outer corner of the haunch-bone across the belly, breast, back, and shoulder as far as the fifth vertebra of the neck, then down again on the lateral side as far as the carpal-joint. On feeling it with the hand crackling could be plainly heard, and the frequent bellowing showed that the animal was in pain. Impressions with the finger soon disappeared. The surface of the skin was moderately warm. The temperature taken at the rectum was 39.5° C. The pulse was strong at 56 to the minute. On auscultation the single heart-beats could be distinctly heard, but there was no distinct sound audible in respiration, which was about 45 per minute, accompanied by a strong expansion of the chest. Digestive activity seemed to have ceased entirely. Both forelegs were spread out sidewise from the chest, and all efforts to cause the animal to change its position were fruitless.

To allay the emphysema I had linen cloths wrung out in cold water and laid upon the puffed-up tract every three or four hours. Over these a blanket was fastened with a girdle. Later, clysters of soapy water were applied with the syringe.

The next day the emphysema extended only on the right side across the back, and on the left across the breast and shoulders, including the elbows. The temperature, however, had risen to 40.8° C., crackling could be heard when the affected parts were touched. The respiration was 36, the pulse 52 to the minute. Food, consisting of liquid meal and bran, was entirely, though slowly, consumed.

In the following days the emphysema decreased slowly and steadily, and the general condition showed no signs of disturbance after the 20th. By the 28th the emphysema had entirely disappeared.—Speer, in *Deutsche Thierarztliche Wochenschrift*, Jan. 30, 1897.

HYGROMA (CHRONIC HYDROPS) OF THE SUBCUTANEOUS BURSÆ ON THE ISCHIATIC PROMONTORIES IN CATTLE.—If we are to judge the occurrence of this disease according to the statements which are found in the literature upon it, then we must assume that hygroma of the kind mentioned does not occur. Neither

Müller, Hoffmann, nor Fröhner make mention of the trouble in their books on general surgery. The following contribution may prove that hygroma on the ischial promontory of cattle occurs comparatively often, and, perhaps on account of its harmlessness, has up till now received little attention on the part of owners and veterinarians.

As official veterinarian of the State Cattle Insurance Establishment in Baden, hygroma in cattle came to my notice, while I had never met with the same elsewhere in my private practice. The fact that three cases of the same occurred during the course of a year shows that chronic hydrops of the sacs in the mucous membrane of certain parts of the bodies of cattle can occur not infrequently, and this is further confirmed by the etiology. In all three cases I have found this swelling only on one side and always on the ischiatic promontory of that side which was turned toward a post or wall. The animals leaned mostly against these, and the prerequisites of the disease, in the shape of contusions, bruises, etc., were thus caused. The narrow stalls, which are usually fitted up very scantily, and leave little room for the animal to move around, easily explain the fact that the occurrence of hygroma is more frequent than is generally known.

Two of these patients leaned against a post situated directly behind them, and the third had the habit, while eating, of resting against a stone which projected from the wall. This observation agrees with the fact that young dogs which are not yet full-grown, and which are kept in narrow kennels, are usually affected with such ischiatic swellings. The hygroma in all cases consisted of a swelling varying in size from the fist to that of a child's head. It was in most cases compact, movable, and not very painful, and the skin could easily be moved over it. The vertical diameter was double that of the horizontal. When an incision was made in the tumor a thin serous fluid, varying in color from a reddish-brown to a reddish-yellow, flowed out, and when it was probed with the finger it showed a spongy cellular formation. In two cases I found, also, one larger and several smaller whitish-yellow ovoidal bodies (corpora oryzoïdea), which were connected with the base by thin stems, and which could be easily separated with the finger. These little bodies reached the size of a pigeon-egg, and generally showed fibrinous strands, forming cavities which resembled the crystal groups of aragonite, well known to mineralogists. The whole growth was confined to the subcutaneous tissue, and only in one case, in which the tumor was as large as a child's head, was the sinewy part of the muscles found in a semi-membranous mangled condition.

Healing took place very rapidly. After an incision from 6–8 cm. long has been made, the corpora oryzoïdea should be removed with the finger and the tumor squeezed out like a sponge, a wad of oakum soaked in tincture of iodine is then inserted, and should be renewed daily. In the course of a week the hygroma disappeared and the wound healed up. External application of iodine preparations on the tumor, without opening, are too tedious and cause the owner much trouble.—Römer, *Idem.*

SELECTIONS.

RAYMOND, in the *Horse World* of November 19th, writes: "It is reported that the *American Veterinary Review* recently referred to the 'trotter' as a horse in which pedigree counts all, conformation little, and beauty nothing, and whose injudicious and limitless breeding has nearly ruined the horse-industry of the country . . ."

It is to be feared that the *American Veterinary Review* is in need of a man, in an editorial capacity, who has sense enough to look around and see for himself before rushing into print with such asinine assertions, utterly lacking in truth. Such beautiful trotters as Daredevil, 2.09¾; Pilot Boy, 2.09¼; Elloree, 2.09¼; Valence, 2.12¼; The Abbott, 2.11¼; Grace Hastings, 2.08; Arion, 2.07¾, and many others that might be mentioned, give the lie to the assertion regarding the lack of beauty, while the severe racing campaigns made by these horses tell of a conformation serviceable in the extreme. The many sales being made daily of trotting-bred carriage and coach pairs, many for export, show the utter falsity of any assertion reflecting on the usefulness of the American trotter for other than racing purposes. Recently, at Kansas City, R. M. C. Lord paid $4000 for the trotting-bred Brilliance and Botanic. Brilliance was sired by Reno's Baby, 2.25½, dam by Pilot Mambrino, and Botanic was sired by Counselor, 2.12½, dam by Charles Caffrey. When the editor of the *American Veterinary Review* can point out some team sired by a hackney or a French coach sire that has sold for a larger price, then will its assertions regarding the worthlessness of trotting-blood carry some weight. The largest winner in the harness classes at the recent Chicago Horse-show was Dr. George S. Gagnon, of New York, and in speaking of the breeding of horses he showed he said : "I have not an animal in my stable but is trotting-bred. Northlight, for instance, which, with his mate, Great Cæsar, won the C. P. Kimball special to victoria, was campaigned, and has a trotting record of 2.17¼. He is sired by Twilight, son of Hambletonian 10, and his dam is Sally Western, by Empire, son of Mambrino Patchen. Here is another, McKusick, who won the blue in class 232, for horse and trap suitable for lady for park use. He is trotting-bred, has been trained, and has a record. Without any exception, every horse that I have shown is bred in trotting-lines, and most of them are standard and registered. H. M. Tichenor & Co., of Chicago, were the second largest winners, and all their horses were trotting-bred. The pair of chestnuts, Challenger and Chancellor, are bred in the stoutest lines. These two, with Larkspur and Howard, won the prize for four-in-hand to coach, and Mr. Tichenor was offered $7500 for the four by a New York man, but declined to consider the proposition. Other ribbons fell to their lot during the show, and in the end Challenger won the $1000 prize for championship of the harness classes, mare or gelding, any age or height. This handsome gelding, the champion in the ring of the greatest horse-show ever held, was bred at Streator, Ill., and was sired by Oneida, son of Nutwood, 2.18¾, dam Babe, by Hambletonian 10. He won first prize as a high-stepper at Kansas City, and first prize in the lead of park tandems at the same show. With Chancellor, he won first for pair of high-steppers. Chancellor, that won first for best park mare or gelding, is a trotter, though not as stoutly or fashionably bred as his mate. He was raised at Wamago, Wis., and was sired by George Chief, a son of Milwaukee, dam by David Hill, Jr. He was trained and took a record of 2.37½ under the name of Red Chief. Larkspur, one of the prize four-in-hand, and that also won first in the class for town mare or gelding, comes from southern Ohio, and Mr. Tichenor says is trotting-bred; while Harvard, the other leader, was raised at Rockford, Ill., and was sired by Star Hambletonian. Wae Bell and Ben Bow, winners in the class for pair of park horses, are exceptionally well-bred ones. The former was sired by the dead Bell Boy, 2.19¼, son of Electioneer, and the latter by Aladdin Wilkes. Sir Walter, another of the Tichenor prize-winners, was sired by Swigert, and has trotted a mile in 2.31. If beauty and conformation do not count in the show ring, where will one go to find where those qualities do? And, if, conceding that beauty and conformation do not count in the show-ring, how much truth is there in the assertions made by the *American Veterinary Review?*

REPORTS OF CASES.

INTUSSUSCEPTION OF SMALL INTESTINE OF COLT; OPERATION; RECOVERY.

By E. Mayhew Michener, V.M.D.,
North Wales, Pa.

On October 11, 1897, a colt, aged three months, property of Cloverdell Stock Farm, Colmar, was noticed at 6 A.M. to have colicky pains, and ordinary remedies were given without relief. I saw the colt for the first time at noon of the same day, and found it in great pain, constantly up and down, and taking the dorsal position when down. My diagnosis was some obstruction of bowels, probably intussusception or volvulus of small intestine. Prognosis, grave. Operation was accordingly advised as affording the only hope. The owner considered the matter until 4 P.M, when he decided to let me operate, and sent in great haste.

On arriving at the farm again about 6 P.M., I at once prepared and arranged an electric light, chloroformed the colt, scrubbed whole under-surface of the abdomen with hot water and soap, and sponged off with hy. bichloride, 1 : 1000 The animal was laid on a clean sheet and opened by a median incision of the abdomen seven inches in extent in front of the umbilicus. The small intestine was secured and pulled over half of its length through the opening and laid on the abdomen between the hind legs. The cause of the trouble was now revealed—an intussusception two feet three inches in length. The bowel was very much swollen and leather-like to the touch, and exceedingly weighty. By letting assistant pull steadily and carefully at the bowel while I pushed at the opposite end of the obstruction, I succeeded in righting the trouble. As the gut slipped into position there was a considerable quantity of nearly colorless liquid liberated which had transfused to the space between the two peritoneal surfaces. About one foot of the imprisoned gut was dark blue to almost black in color, and very suggestive of gangrene. After stroking the dark part with the hand for a minute or two to promote circulation, the intestines were returned to the abdomen and wound closed by three lines of sutures, row of continuous for peritoneum, one row for recti muscles and tunica abdominis, one row for skin, waxed linen thread being employed, this being the only material at hand. The abdomen was sponged with bichloride and the anæsthetic removed. Time, about twenty minutes.

The colt soon recovered from the chloroform and nursed in less than thirty minutes from finish of operation. Temperature before operation 103⅚°; one hour after operation, 104½°. The colt passed a very good night, standing most of the time, but occasionally down and resting easily. Nursed frequently and drank a small quantity of water at short intervals.

October 12th, temperature 104½°; slight diarrhœa. Peristaltic movements energetic, causing a loud rumbling sound; otherwise doing very well.

13th, temperature 104°; bowels still active, but feces more solid and covered with some tough mucus. Improved in appetite and general appearance; wound doing nicely.

From this time on the temperature dropped slowly to normal. On the ninth day the stitches in the skin were removed to keep them from cutting; the wound in the skin gaped a little. Suture of recti muscles and peritoneum removed on the thirteenth day, showing complete union. There now (November 2, 1897) remains only a slight wound, rapidly healing. The animal is lively and well.

During the operation and the progress of the case I was aided by the advice and assistance of my father, Dr. J. C. Michener, of Colmar.

INTESTINAL PERFORATION BY TÆNIA SERRATA.

By Harri H. Dell, D.V.S.,
SULLIVAN, ILL.

Subject: Gordon setter bitch. *History:* About six weeks previously she had given birth to five puppies. While engaged in her maternal duties, about noon on April 19th, she suddenly evinced a desire to leave the room. Her mute request being granted, she remained out of doors for probably half an hour, but, on being readmitted, appeared to be in great distress, vomiting freely. The family, all cynophilists, in that they lavished their affections upon their canine friends, at once came to the conclusion that some envious neighbor had poisoned the animal, and hastily sent for me.

On arrival, found the animal suffering greatly, temperature 102° F., hurried respiration, pain and tenderness over the abdominal region, percussion of the latter giving a dull sound. Diagnosis, peritonitis with effusion. Prognosis unfavorable.

Ordered hot applications to abdominal region and left sedatives to be administered at short intervals, which, while affording some relief, could not stay the inevitable progress of the pathological conditions, death occurring the following day at noon.

I was eager for, yet somewhat fearful of, an autopsy; for, to my mind, while there was undoubtedly a subacute or chronic peritonitis, the fact that the animal had not shown any unusual symptoms until the day preceding death seemed not to warrant the diagnosis.

The autopsy was held three hours after death, revealing the following conditions: On opening the abdominal cavity it was found to contain three pints of a thick, reddish sero-fibrinous fluid, floating in which were numerous segments, varying in length, of some variety of tænia. There was a diffuse peritonitis involving the parietal and visceral layers. The intestinal folds contracting the stomach were united by adhesions of organized exudate. The gastric omentum was much thickened as a result of the inflammatory processes, showing many areas of necrosis; attached firmly to the more healthy portions were the cephalic ends of seven tænia. Siphoning off the fluid, a close search for perforation of the intestine was rewarded by finding three in number about four centimetres in diameter, the edges roughened and brown in color. The stomach contained a small quantity of partly-digested milk, the mucosa pale and evidencing no inflammatory changes. The duodenum and jejunem contained semi-digested food, the mucous coat of the ileum showing circumscribed areas of inflammation, adhering to which were the cephalic ends of seven tænia. The perforations were through the walls of this portion of the tract. The kidneys were slightly congested, the bladder containing a small quantity of urine. Examination of the thoracic organs revealed nothing worthy of note.

Pathological diagnosis: Perforating wound of the intestine, diffuse sero-fibrous peritonitis, due to the presence of tænia serrata, possibly complicated by the entrance into the peritoneal cavity of septic material from the intestine, traumatic cellular proliferation of the mesentery and gastric omentum, sero-fibrinous exudate and adhesions of the intestinal folds to the stomach; death resulting from septic infection and cardiac failure.

The intestinal walls were not thinner than normal; if anything, they were slightly thicker, and those portions surrounding the perforations exhibited no evidence of ulceration past or present, forcing the conclusion upon the writer that the migration of the tænia was quite voluntary on their part.

Among the peculiar features of the case is the fact that the owners had noticed no symptoms that indicated the extensive pathological alterations which were taking place, for undoubtedly the migration had been effected a considerable time before medical assistance was sought.

Intestinal perforation by tape-worms must indeed be rare, for in several hundred autopsies on dogs (in few of which tænia of some form were absent), this is the first case to come under my notice. Menin, however, records a case in the horse, with the formation of diverticula and cysts. In the *Revue Veterinaire*, 1888, M. Cadeac records the case of a terrier exhibiting symptoms simulating those of rabies. On being destroyed, a perforation of the duodenum was found, engaged in which was a tænia (species not given), another one being free in the peritoneal cavity. This is the only other case in the dog I have been able to discover in the literature at my disposal; but through the courtesy of Dr. Cecil French, who has very kindly searched the libraries of the Army Medical Museum and the Bureau of Animal Industry, I am enabled to add still another case. In the *Receuil Veterinaire*, 1888, Lahogue reports a case exhibiting rabiform symptoms, the autopsy revealing three perforations due to tænia serrata, but recording no other lesions. It will thus be seen that both these Continental cases differed in the symptoms from the case under discussion, the duties of the maternal condition in the latter not being sufficient to account for the insidious nature of the pathological changes.

POTASH IODIDE IN SCIRRHOUS CORD.

By M. J. TREACY, Veterinarian, U. S. A.,
FORT MEADE, SOUTH DAKOTA.

IN April last there was presented to me a livery horse, frightfully emaciated, with an unilateral champignon so extensive as to seriously interfere with the propulsion of his posterior limbs. After draining off the effusion, its base measured seventeen inches by eight. There was no discharge, nor could the presence of pus be detected by manipulation or the free use of the exploring trocar and canula.

Having lost two cases from hemorrhage after operation for champignon in the last two years, and thinking naturally that this one presented a very severe test for the kali-iodide treatment, I readily made up my mind to adopt it. In order to tone up his system, his teeth were operated upon, and he received the following, morning and noon: 2 per cent. acid sol. arsenic, ʒx; tinct. ferri chlor., ℥iij; strychnia hydrochlor, grs. xxvj; syrup simp., ℥j. Mix. Sig. Shake; half ounce by syringe, morning and noon, with one drachm of potash iodide every evening. Potash iodide pulv., one drachm in one ounce of water each night. Apply hose to scrotum for one hour, night and morning; gently exercise two hours daily.

For ten days there was no visible decrease in size of enlargement; after which it rapidly faded away, so to speak; the horse now went to his usual work, of a very severe kind, and in twenty-six days from commencement of treatment there was no trace of enlargement, the cord not being any thicker than a finger, the horse looking in fine shape. Anticipating a recurrence, I suggested the removal of cord and its attachment to scrotum, to which the owner objected, and up to date, though subjected to the roughest livery work by long drives, irregular feeding and watering, tied up to fences, etc., in cold and rain, often when heated and sweating, as livery horses are habitually used in this country, this horse retains his health so far as scirrhous cord is concerned.

I consider this case an extreme victory for the iodide treatment, but I am inclined to believe that double doses of this drug, from the initial treatment, would have obtained speedier results, as it was apparent that no benefit accrued until the system was at least partially saturated with it. I would try two or three drachms daily until the absorption at least commences.

SPASMODIC CONTRACTIONS WITH HYPERTROPHY OF THE RETRACTOR MUSCLES OF THE PENIS OF A BULL.

By D. S. White, D.V.M.,
COLLEGE OF VETERINARY MEDICINE, OHIO STATE UNIVERSITY.

In April, 1896, a full-blooded, fifteen months' old Jersey bull was brought to the free clinic of the University with the anamnesis that it had never been able to serve a cow. The owner of the animal maintained that the penis, instead of being protruded from the prepuce during the act of coitus, was misdirected into a pouch formed by a fold of the skin of the lower abdominal wall. A careful examination of the animal, however, failed to divulge any such sac, nor at that time could anything else be found to explain the patient's inability to fully protrude the penis during an erection. The owner was advised, therefore, to take the animal home and inform us when one of his cows should come in heat, so that an examination could be made while the bull was in the act of covering. A few days afterward we went out to the farm and witnessed the animal attempt the act of copulation. The bull seemed to possess unusual sexual desire for one of his breed. At the beginning of a leap, in covering the cow, the penis was protruded about two inches beyond the orifice of the prepuce; but as an entrance was about to be made into the vulva it was drawn back again into the sheath and the ejaculation performed therein. The retraction seemed to be effected forcibly. An examination of the retractor muscles of the penis was then made; at their attachment to the S-shaped curve in the corpus cavernosum these muscles could be plainly felt, and, as the sexual excitement became greater, they seemed to be thrown into tonic spasmodic contractions, drawing the penis far back into the sheath. A diagnosis of "spasms of the retractor penis muscles" was made, and as the condition, which appeared to be permanent, would render the bull worthless for breeding purposes, it was suggested that the muscles be severed by operation at the S-curve. After overcoming the owner's objections, he fearing a prolapsus penis would result, the animal was cast and the muscles severed at a point about one inch from their attachment to the posterior curve. On cutting through it was noted that the muscles were hypertrophic, forming two distinctly marked semiconical bands of about double the normal size. The muscular fibres were plainly seen on cross section as pale bundles of muscular tissue; the ligamentous structure correspondingly not so well developed as was found in the specimens from other animals of the bull kind examined by us afterward.

The operation, which proved to be very simple, being done with aseptic precautions, the wound healed per prima. The bull was used for service some seventeen days later, when a slight temporary prolapsus penis occurred, but which soon disappeared. The bull has since stood at the head of a herd of nearly forty cows, and has since the operation begotten a number of calves.

In the literature available to me I can find no record of another case of this kind, nor have we in our experience seen it duplicated.

COXITIS IN A MULE.

By W. E. A. Wyman, V.S.,
CLEMSON COLLEGE, SOUTH CAROLINA.

Recently, while investigating for the State an outbreak of hæmoglobinuria among cattle, the writer was shown a mule offering the following symptoms: Severe mixed lameness, supporting-leg lameness being somewhat more marked than swinging-leg lameness. Inspection while standing still revealed decided atrophy of all gluteal muscles of the right hind leg. The great trochanter of the almost vertical femur, which seemed to be in front of the cotyloid cavity, was plainly visible under the skin. The external angle of the ilium of the affected right side was lower than the one of the left side. The leg was abducted, the toe turned out, the point of the hock almost touching the inner face of the left hock. Palpation over the region and in front of the cotyloid cavity seemed very painful, the mule grunting when the parts were handled. Right in front of the coxo-femoral articulation a movable enlargement (movable only toward the cotyloid cavity) was felt. This I took to be the superior extremity of the femur, but was puzzled to a great extent why it could not be moved upward and forward. Rectal examination showed a swelling on the shaft of the ilium, some rough spots were felt along the anterior border of the foramen ovale.

The history of the case is as follows: Nine months ago the mule, four years old, was playing in the lot when it suddenly slipped and fell upon the right side; got up immediately, but was very lame. The animal was then given absolute rest for about six weeks, when the owner found him down in the stable one morning, unable to rise. With some help he got up; his toe was turned out, and something seemed to be loose and working under the skin whenever he stepped upon the lame leg. The owner, thinking something was dislocated, put the mule into deep water and made him swim, hoping that the dislocated part would thus come back into place.

The symptoms and history of the case induced me to make a diagnosis of luxatio iliaca, the result of a primary fissuring of the bones of the cotyloid cavity, and subsequent destruction of the ligamentum teres and dislocation of the femur.

The owner having consented to kill the animal, a post-mortem examination was held, and brought out the following points: The deep gluteus was practically converted into a fibrous capsule which had spread and surrounded all the diseased parts of the shaft of the ilium. The head of the femur was resting in a rough, new, articular cavity right in front of the cotyloid cavity, the roof of that new cavity being formed by an enormous exostosis, which, at the same time, explains why the writer was unable to push the femur upward and forward.

The cotyloid cavity was rough and surrounded by exostoses. The new articular cavity was quite smooth in places. The head of the femur and the whole of the scabrous portion were diseased. After careful study of the bones, the writer has come to the conclusion that his diagnosis of luxatio iliaca, the "result of a primary fissuring of the bones of the cotyloid cavity, etc.," was not correct, but that the ligamentum teres was primarily affected, and subsequently the bony structures.

CONTROL WORK.

REFERRING to the serious epizoötic form of disease prevailing at Alvin, Galveston, and Austin, Texas, Veterinary-Surgeon Falsetter finds on the carpet-grass and rushes of the coast country a heavy deposit of black smut; nearly all fatal cases had access to these grasses. Hay- and grain-fed horses, not allowed access to these pastures were free from the disease. No traces of smut were found at Galveston, where many died on the mainland.

Live-stock Commissioners from Illinois, Indiana, Kentucky, and Tennessee met in Chicago early in November, to take action against the practice, said to be rife in Chicago, of buying and selling horses infected with glanders and cattle with Texas-tick, supposed to be the cause of splenic or Texas fever. Resolutions were unanimously adopted asking that the Secretary of Agriculture call a general convention, to meet at St. Louis or some other central point, not later than December 15th. One of the most important subjects for consideration will be the present quarantine law, which is objectionable to many of the Northern dealers.

The Experiment Station authorities at London, Ont., are endeavoring to stamp out tuberculosis in that place, and have already destroyed twenty of the twenty-eight cattle affected.

Local Boards of Health at Rochester, Utica, Saranac Lake, Connellsville, and Cortland, N. Y., demand tuberculin examinations of all cattle used for furnishing milk for sale in these towns.

EDITORIAL.

1897—JOURNAL—1898.

WITH this number we close the eighteenth volume of the JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES. 1897 has been a year of uncertainty in business circles, and to the veterinary profession, whose usefulness is so largely commercial, it has been one of great doubt and disappointment. The JOURNAL has had a more prosperous year than it had in 1896, for which we recognize our indebtedness for the great help and assistance afforded us by the members of the profession. We have been favored with more valuable material than in any one year of our history, and we have rendered a full account to our readers. In addition to the sixty-four well-filled pages each month, we have added some two hundred and thirteen extra pages—or an average of nearly twenty to each issue during 1897. Every movement for the well-being and advancement of the profession has received our unqualified support. Association circles everywhere have felt the strength and support of the JOURNAL. Control work all over the land has been carefully followed and our readers kept informed of every important movement. We have kept in touch with the work and movements of the profession at home, and noted much of those in foreign lands. We have thus contributed to the common bond of union that draws us together. We have been open and fearless in our editorial opinions, and have had no enemies to punish, no friends to reward, other than where it was for the good of the whole profession.

We hasten the outgoing of the old year, believing that in welcoming the new we are assured of a greater measure of good things for our readers and subscribers than the past year has brought them. The better condition of our agricultural population and the revival of the live-stock industry are sure to be noted during the coming year, and the increased interest in the sanitary fields of the veterinarian is sure to bring an increased measure of prosperity to all. Never in the JOURNAL's history has it been prepared to enter a new year with as great a corps of assistants and contributors as it will for 1898. The ablest writers in the land, the largest corps of contributors, the most extensive list of correspondents, will keep our columns well filled with information of every kind, to instruct, to enlighten, to interest, and to strengthen fraternal feelings one with another, and thus equip the largest number in the most thorough manner for every aspect of our work. We thank all of those who have so ably aided us the past year, and we wish for all in the new year an era of prosperity that has not been possible for several years. Speed the outgoing, welcome the incoming.

LET THE SHOEMAKER STICK TO HIS LAST.

THE following note is taken from the current number of a prominent agricultural paper:

" A special inquiry concerning abortion and milk-fever is also being made, and the probabilities are that a bulletin of information on this subject will be issued in a short time."

This refers to the Agricultural Experiment Station in New Jersey. This Experiment Station is one of the few in the United States that has no veterinarian attached to its staff, although for several years past it has issued bulletins on veterinary subjects. These have been prepared by a gentleman who is a very good biologist, but has neither practical nor theoretical knowledge of the diseases of animals. When such authors write on unfamiliar subjects their publications may be of value if they are confined to compilations from standard authorities; but when they attempt to voice their own opinions their so-called information is frequently absurd and misleading to an extreme degree.

Do Experiment Stations ask horticulturists to prepare bulletins on butter-making? Do they ask dairymen to conduct experiments on the testing of seeds? Are irrigation-engineers supposed to have expert knowledge on the rearing of calves, and are entomologists ever called upon to write observations upon the construction of silos? If not, why should a biologist be obliged to prepare bulletins on tuberculosis, milk-fever, and abortion? Agricultural science and the work of Experiment Stations are now specialized to such a degree that it is not only absurd but wrong for any but acknowledged experts to prepare bulletins upon important subjects in the line of such work.

Veterinary science deserves to rank as an independent, well-developed specialty. It has schools, professors, and a large, intelligent, active, progressive body of men, devoting all of their time to its development. It has also an immense literature. For all of this to be disregarded by the New Jersey Experiment Station is a rank injustice to the farmers of that State.

If bulletins on veterinary subjects are important enough to justify *their publication by an Experiment Station, they are certainly of sufficient importance to justify the employment of an expert to prepare them.*

ONTARIO SETS A BAD EXAMPLE.

In a recent report of a meeting of a veterinary society in New England, the Secretary wrote at the end of his minutes: "Thank Heaven, the everlasting subject of tuberculosis did not come up!" And it is to be feared that many veterinarians look upon discussions and articles on this subject in the same light. We should remember, however, that the matter of tuberculosis is one of the most urgent that is now confronting the live-stock industry and the veterinary profession, and is far from settled. The measures to be adopted in suppressing this widespread, destructive, and dangerous disease are not decided upon. Eminent authorities disagree as to the best methods to be employed, and the regulations of the different States and countries are varying and conflicting. This is a subject in which there is more interest among the laity and among the members of the medical profession than any other with which veterinarians deal. The difficulties to be met in planning and enforcing a campaign against tuberculosis of cattle are numerous and of the most varied character. *All of them call for the application of a sound knowledge of pathology and comparative medicine in general, and of this disease in particular.* The occasion for such knowledge will always be great, but in this formative period of the campaign it is more urgent than it will be at a later time, when plans have been tested and there is a general consensus of opinion as to those that are most practical, efficient, and best. The relations of this disease to the future of the live-stock industry and to the public health are the factors that should predominate in these considerations, and these factors are best understood by men trained in comparative pathology and in veterinary science. To delegate either the origination or execution of measures directed against the spread of tuberculosis to men not so trained is not only an injustice to the taxpayers and to the animal industry, but it is a crime against the consumers of cattle-products.

These remarks are incited by a perusal of a special bulletin on tuberculosis in cattle that has recently been issued by the Ontario Department of Agriculture. The authorship of the bulletin is not indicated; but this is unimportant, because it is almost entirely a compilation from the writings of well-known authorities on this subject, and a statement as to the provision made by the Ontario

Department of Agriculture for the testing of herds with tuberculin. It is to be noted that the Department of Agriculture has employed an agent to give "demonstrated instructions concerning the detection and treatment of tuberculous animals to those who require his services. He will attend meetings called by farmers' institutes and deliver addresses on this subject, and give full instructions concerning the use of the instruments, fluids, etc., that are used. He will at all times be prepared to properly test animals."

It is a grave question as to whether it is fair to the live-stock industry to give popular instruction concerning the use of the tuberculin-test. The general consensus of opinion among veterinarians and those who understand this subject best is against the giving of such popular instruction. *It should be distinctly understood that it is not a narrow or selfish view that leads to this opinion.* Do surgeons give popular instruction on hip-joint amputations and laparotomy to the laity? Do physicians inform their patients how to make Widal's test for typhoid fever, and how to produce diphtheria antitoxin? And does the shipmaster instruct his passengers how to pilot a vessel into New York harbor? It is not a narrow or selfish view that prevents the giving of such instruction. The average man is incapable of appreciating it, and if he were taught to believe that he possessed full information in reference to these subjects his knowledge would do himself and others far more harm than good. The Ontario Government is the first to attempt risky instruction of this character. There can be no doubt that farmers should be informed as to the nature of tuberculosis and the general means which they can employ to prevent it. But they should not be encouraged to apply the tuberculin-test themselves, for blunders will be the inevitable result. Many mistakes will occur. After a cow is once tested she cannot be tested reliably a second time until a long period has elapsed. Under such conditions the tuberculin-test is bound to fall into disrepute, and the benefits to be derived from an agent that furnishes the most promising means of eradicating tuberculosis will be lost to many communities.

It is amazing and alarming to note that the instruction in reference to tuberculosis and the use of tuberculin is not given by a veterinarian familiar with the intricate points of animal pathology and the many essential technical questions involved, but by a certain lieutenant-colonel, who has presumably made a more or less careful study of this single disease, but cannot possess the full knowledge of other diseases and collateral subjects that are absolutely indispensable to a proper conception of this question in all its important bearings.

Ontario has a high reputation as a breeding-district. The live-stock show held annually in Toronto is the best on the Continent, and cattle from Ontario are sent out to improve herds in all parts of Canada and the United States. Do those responsible for the protection of the live-stock industry in Ontario appreciate the gravity of the action they have taken in reference to tuberculosis of cattle? Do they not know that an intelligent interest in this disease is growing rapidly everywhere, and that purchasers are becoming more strict in their requirements from day to day; and do they not know that such teaching from such a source will lower confidence in them and will react to the injury of their industry? If the farmers of Ontario are taught and encouraged to make an indiscriminate use of the tuberculin-test, how can purchasers of cattle there know that their animals are free from tuberculosis, even if subsequently tested by experts?

The tuberculin-test should be under some competent, reliable supervision, and should be reported to some central authority. This is the opinion of the highest veterinary body on the Continent, as the following resolution adopted by the 1897 meeting of the United States Veterinary Medical Association is proof:

> *Whereas*, the tuberculin-test has been proven to be the only reliable ante-mortem means yet discovered of determining the existence of tuberculosis in its obscure forms; and,
>
> *Whereas*, the repetition of this test on the same subject tends to lessen the characteristic reaction, thus producing a non-responsive condition of the animal, which may be mistaken for soundness; and,
>
> *Whereas*, these facts may be, and are, taken advantage of by the irresponsible and unscrupulous to aid in the disposition of diseased animals; be it
>
> *Resolved*, that the private employment of this test, except as supervised by competent and responsible persons, is fraught with danger to the public.

Another phase of this subject should be of interest to the Ontario authorities. Ontario has always been looked to as a veterinary centre, and numerous students have been drawn to her veterinary college. It is a sorry reflection on this college to place a layman in charge of such an important branch of veterinary work in the province in which it is situated, and will be apt to cause a false impresssion regarding it.

ON another page of the JOURNAL will be found a fitting tribute to the memory of our esteemed fellow-worker, Dr. W. H. Harbaugh, written by one who knew him intimately and well. It is a just encomium to a rare and tireless worker in our profession, and we join most heartily in the wish of the writer, that Dr. Harbaugh's example to his fellow-men may be a rich influence in moulding the career and efforts of others to serve their chosen profession as well.

AMONG our reports of cases in this issue will be found one of peculiar and important surgical interest. Only those who are fully conversant with the difficulties of control and asepsis in the lower animals, the equine family especially, can fully appreciate this triumph in abdominal surgery. In our October number were recorded several interesting and successful surgical operations by the same writer, and they reflect great credit upon our esteemed colleague, Dr. E. Mayhew Michener, and place him in the front rank of surgeons of comparative science in abdominal surgery. These successful issues in major surgery open up a field of great value in equine, bovine, canine, and porcine surgery which must add greatly to the successful preservation of many like cases in valuable breeding-stock which in the past have usually died or were rendered comparatively worthless for indefinite periods.

ROCHESTER, N. Y., opens a new field of association work, and we are very sure it will be felt as a potent influence for good in the Empire State. The society will include the members of the profession from several adjacent counties, and the very representative names of the profession in Rochester who are directing this movement give assurance of its success. We welcome this organization to the field in New York State because our profession needs better legislation in some directions, and some that has already been gained needs modifying, while other lines of work out of the province of the veterinarian will never be successful until they are directed and performed by veterinarians, of whom New York State has many able representatives.

NECROLOGY.

A. L. HUMMEL, M.D.

AT Denver, Colorado, on October 24th, Dr. A. L. Hummel passed away after a serious illness of but ten days. He had resided in Colorado for the past three years as a more congenial climate for his impaired health, which up to the time of his last illness seemed much benefited by the change. But forty years of age, he had led a very active career. A graduate of the Medical Department of the University of Pennsylvania, he was the promoter of the University of Pennsylvania Press, and for several years the publisher of the JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES. Several other medical journals had been under his direction from time to time, and during the past five years he represented a syndicate of medical journal advertisers. He was buried at his old home, Hummelstown, Pa.

JOHN H. ADAMSON, M.D.C.

At St. Paul, Minn., on October 25, 1897, Dr. John H. Adamson passed away, from injuries received by being kicked by an equine patient under his treatment, producing a double perforation of the small intestine, which surgical skill could not relieve.

Dr. Adamson was a graduate of the Chicago Veterinary College, class of 1893. His first year's studies were pursued in the Veterinary College, Edinburgh, Scotland. He came of a family of veterinarians, his grandfather, father, and brother were all practitioners of veterinary science in the old country.

He had filled for several years the chair of Anatomy in the United States College of Veterinary Surgeons. Dr. Adamson was a man of excellent habits and an able practitioner. He was thirty-nine years old, and leaves a wife to mourn his loss.

WILLIAM HEYSER HARBAUGH, V.S.

In the death of Dr. Harbaugh the veterinary profession in Virginia has met an irreparable loss. A man of many parts, highly educated and an enthusiast in his chosen work, he had for years stood at the head of the profession in his adopted State. As a practitioner, he was favorably known throughout the State. As an author, his writings are known by all members of the profession throughout the country.

Dr. Harbaugh was born in Cumberland, Md., February 19, 1856, descending from the early settlers of that part of Frederick county known as Harbaugh's valley. He was educated at St. Vincent's College in Pennsylvania, and in Canada. He graduated as a veterinarian from the Toronto Veterinary College, Class of 1885, with high honors, winning the first prize on disease and treatment, first prize in microscopy, and the highest honors in entozoa, besides several second prizes in other branches.

In 1885 he removed to Richmond, Va., to begin the practice of his profession. He was the first graduated veterinarian in the State, and at once began a relentless warfare on the empiricism so prevalent throughout the South. His success as a practitioner was immediate, and he was at once recognized as an authority on all subjects pertaining to his profession throughout the State. His work as an inspector for the Bureau of Animal Industry and his writings on various subjects for that department are well known.

Perhaps his most important work was known best to his immediate associates. For years he had been impressed with the dangers of tuberculosis and its transmission to the human race from tuberculous cows. His work, against overwhelming odds, in trying to secure a better milk-supply for the city of Richmond rises to the plane of the highest philanthropy. In the face of a united opposition from the dairymen, and unaided by anyone, he kept up a relentless war upon tuberculous cows.

While tuberculosis is known to have existed in his family, he having lost a sister from the disease, those of us who knew him best feel certain that his life was sacrificed on the altar of scientific investigation. For weeks at a time his office and hospital was a place for practically demonstrating to medical men and laymen the existence of this dread disease among the dairy cows of Richmond, and many think, and with good reason, that the continued work over diseased lungs and with the microscope resulted in a fatal infection.

Dr. Harbaugh was the first President of the Virginia State Veterinary Medical Association, and for the two terms during which he was President did more than anyone else for the advancement of its interests. He was more instrumental than any other one man in securing the necessary law for the protection of the veterinary practice of the State, and was an honored member of the State Board of Veterinary Medical Examiners.

Dr. Harbaugh leaves a wife and interesting family of small children, two girls and a boy, to mourn his loss. The profession at large mourns an earnest, conscientious worker, and the profession of this State a leader whose example may serve to stimulate a renewed devotion to their chosen work. His loss is felt by us all. Generous to a fault, to know him was to admire and respect. We mourn his loss. But we have with us his good example, which will always live.

GEO. C. FAVILLE,
Norfolk, Va.

MARRIAGES.

Houldsworth—Ward.—On Wednesday evening, October 27th, at the residence of the officiating minister, Rev. Sumner Wynne Stevens, 5513 Hunter's avenue, West Philadelphia, Dr. Joseph D. Houldsworth, of Roxborough, to Miss Hattie Ward, of West Philadelphia.

Paxson—Noblet.—On Friday evening, October 28th, at the Cathedral of Sts. Peter and Paul, Chicago, Ill., Dr. Harry Darlington Paxson to Miss Etta Lawrence Noblet.

REVIEW.

Diseases of Swine. By D. McIntosh, V.S., Professor of Veterinary Science in the University of Illinois.

This book has aimed to cover a field of comparative pathology very imperfectly understood, and to do it alike for the veterinary student and the swine-grower. It is only too true that much has been written as the result of original investigation by several American authorities. Still, of what has been studied there remain the widest divergence of opinion and admitted uncertainty of scientific, practical methods of dealing with these diseases. The obscurity in which a large number of swine-diseases still remain makes difficult the task of preparing a text-book of merit. To afford a work equally valuable to veterinarians, students, and swine-growers at once arouses one's fears that in the present light this would be an almost impossible task, and indeed it is very questionable whether efforts in this direction at the present day may not be more injurious than beneficial. A compilation of what has been the result of observation only, and based upon no accurate study, is not destined to aid the intelligent and progressive veterinarian. Doubtful or wholly empirical knowledge is dangerous in the hands of students or laymen, and is sure in the end to lead to a lessened appreciation of the profession. It is hoped, however, that this effort of the author will demonstrate the great commercial need of more extended knowledge, and thus lead to the production of a work abreast with the demands in this field.

A Vermont creamery makes 10,000 pounds of butter daily.

SOCIETY PROCEEDINGS.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THE monthly meeting was called to order on November 9, at 8.30 P.M., by Vice-President H. P. Eves, Dr. Pearson having sent word that it would be impossible for him to be present early. Those present were: Drs. J. Cheston Morris, Otto G. Noack, Robt. Gladfelter, John B. Raynor, G. W. Shaw, F. S. Allen, H. P. Eves, W. Horace Hoskins, W. S. Kooker, Chas. Lintz, Jas. T. McAnulty, Leonard Pearson, Jas. B. Rayner, W. L. Rhoads, Thomas B. Rayner, C. J. Marshall, John W. Adams, A. F. Schrieber. Also Messrs. J. N. Megary, Lewis D. Horner, A. E. Cunningham, Bassett Kirby, P. K. Jones, John J. Repp, Wm. Hughes, J. E. Spindler. After the regular routine of business, Dr. Adams, the essayist of the evening, not being present, Dr. Kooker reported a case which he had diagnosed as azoturia. After giving the history and treatment, from which he had received but fair results, he said he wanted advice. Dr. Hoskins thought from its history and progress he would consider it a case of immobility. Dr. Eves spoke of having several cases similar in one locality, and felt it was due to some cerebral lesion, but could not tell just what, as the attacks were of short duration, relief coming invariably in the shape of death.

Drs. Pearson and Adams now came in, and upon President Pearson taking the chair he called upon Dr. Adams for his paper on "Opacities of the Crystalline Lens in the Domestic Animals." Dr. Adams dealt with his subject strictly from a practical standpoint. He first gave the names of the many opacities known more commonly as cataracts, then told of the symptoms and conditions by which each might be known. He then told of the treatment and possible chances of recovery. He then explained the different operations and the many appliances from which one might choose.

Dr. Pearson now read a paper on "Methods of Meat-inspection," wherein he told of the various methods of meat-inspection now in vogue throughout the civilized world, and he offered many valuable suggestions for the improvement of the inspection of Philadelphia's supply of meat and milk. During the general discussion which followed he suggested that the killing here be done in central abattoirs, or that all killing be done at a fixed time, so the inspectors may more thoroughly do the work assigned them. Dr. Schrieber, one of the present inspectors, told of the work they were doing. He explained the present method of inspection, and told how and why they were greatly handicapped by the present conditions. Dr. Hoskins said the people of New York owed much to the Woman's Health Protective Association of their city for the improved inspection which they now had, they having fought for good, thorough inspection for seven or eight years, while the surrounding towns are satisfied to take any and all meats dumped upon their market stalls. Drs. Noack and Kooker thought we should give special attention to market inspection. Dr. Adams thought we should first control the killing through central abattoirs, then look after the markets for tainted and otherwise unwholesome meat. Dr. Allen spoke of the delivery of milk in glass jars, saying the milk-man would fill the jar coming from a pest-house and give it to the next customer. Dr. Morris said this was not the proper method of serving in glass jars. His method was to have all milk bottled at the dairy and sealed with a label bearing date of milking and address of owner; it could then at all times be traced, and if these jars were properly sterilized when returned home disease could not be carried.

An exceedingly interesting report from Dr. E. Mayhew Michener on "Intussusception,"[1] two feet three inches in length, of small intestines of colt; operation and recovery. Dr. J. Cheston Morris now told of the post-mortem held upon Chief Utan, who had so lately died at the Philadelphia Zoo, he having an invagination of four inches. Dr. Hoskins, as chairman of committee appointed to confer with the Woman's Health Protective Association, now reported just what had been done, and gave notice of meeting to be held by the Woman's Health Protective Association at an early date, to which all veterinarians would be more than welcome. The hour being late, the meeting adjourned, although there were a number who wished to report cases.

W. L. Rhoads,
Secretary.

VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular monthly meeting was called to order at 8.30 P.M., Wednesday, November 3, 1897, at the New York Academy of Medicine, with the Vice-President, Dr. Robertson, in the chair. The following members responded to roll-call: Drs. Amling, C. C. Cattanach, J. S. Cattanach, J. S. Cattanach, Jr., Delaney, Ellis, Gill, Hanson, Lamkin, MacKellar, Neher, Robertson, Ryder, and Winslow (14). The minutes of the previous meeting were read and approved. The *Comitia Minora* having no report to make, reading of papers was next in order.

Dr. Neher gave the meeting the benefit of his experience in "double current irrigation" and exhibited several instruments employed by him for that purpose, and also gave an interesting little "talk" on the indications for its use. After a free discussion on this subject, Dr. Lamkin opened a discussion on the diagnostic value of mallein, stating that he did not feel disposed to rely upon it, and reported several cases to substantiate his views; the discussion on this subject soon became general, and lasted for a considerable time.

Moved by Dr. Hanson, and seconded by Dr. Gill, that a vote of thanks be extended to Dr. Neher for his "talk" on "double current irrigation" and exhibition of the instruments, and to Dr. Lamkin for his report on the use of mallein; carried.

Dr. Gill also made the suggestion that Dr. Neher send a cut of the instrument to the veterinary journals for the benefit of the profession.

Reports of Special Committees. Publication: Dr. Gill reported for this committee that all the matter connected with New York was complete, and that the rest of the matter was in such shape as to be out in about two weeks. Moved and seconded that the report be accepted; carried.

Moved by Dr. Hanson and seconded by C. C. Cattanach, that the Secretary notify all members of their indebtedness to the Association before the next meeting; carried.

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[1] See p. 779.

Moved by Dr. Gill that a committee be appointed to investigate in reference to registration of Messrs. Grenside and Hingston; seconded; carried.

President Robertson appointed Dr. Gill to act as a committee of one to search the register. Moved and seconded that the meeting adjourn; carried.

ROBERT W. ELLIS,
Secretary.

VETERINARY MEDICAL SOCIETY OF THE ONTARIO VETERINARY COLLEGE.

THE Society held its first meeting of this college session, October 13th. The Society was called to order by Prof. Sweetapple in a few well-chosen remarks, after which the Society proceeded to its annual election of officers, which resulted as follows: Secretary, C. W. Fisher; Assistant Secretary, J. S. Pollard; Treasurer, R. Macdonald; Librarian, W. L. Adams. The meeting then adjourned. Since then weekly meetings have been held, presided over by one of the members of the Faculty, and the following papers read by members of the senior class and duly discussed by all.

Essays: "Navicular Disease," S. S. Treadwell; "Chloral Hydrate," Alex. McGregor; "Arnica," R. Macdonald; "Mange in Dog," C. E. S. Brind; "Tuberculosis," W. H. Pethick; "Navicular Disease," A. E. Atwood; "Shoeing," E. R. Stockwell; "Contagious Diseases of Swine," A. C. Walker; "Examination for Soundness," G. W. Mackie; "Castration," J. E. Ellis.

Communications: "Parturient Paralysis," J. A. Raleigh; "Removal of Eyeball of Dog," Alex. McGregor; "Sunstroke," C. E. S. Brind; "Indigestion in Dog," I. W. Parks; "Acute Laminitis," E. B. Shaw; "Ascites in Dog," R. Macdonald; "Simple Ophthalmia," H. R. Clark; "Purpura Hemorrhagica," J. P. Stranghan; "Parturient Apoplexy," G. W. Mackie; "Inversion of Uterus," J. S. Pollard; "Lipoma of Eye," F. J. Neiman; "Thrombosis of Metacarpal Artery," A. E. Atwood; "Poison in Dog," J. D. Bell; "Choking," B. W. Powell; "Acute Indigestion," D. McKenzie; "Mammitis," W. H. Pethrick.

C. W. FISHER,
Secretary.

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE regular meeting was held on Thursday evening, October 20th, in the library, the first Vice-President, Prof. Baker, occupying the chair.

There were present also Dr. Duncan McEachran, Dr. Sugden, and a full attendance of members.

After roll-call and the reading of minutes, it was unanimously voted that the Secretary should order Georg Müller's *Diseases of the Dog*, and P. J. Cadiot's *Treatise on Veterinary Surgical Therapeutics of the Domestic Animals*, as additions to the library of the Society.

The President then called on Mr. Lambert for his case-report, which proved to be one of "Impaction of the Colon in a Mule," rendered interesting from the fact that he had obtained no results from the use of such powerful drugs as croton oil and eserine, and that the post-mortem showed the colon to be decidedly subnormal in size. Mr. Lambert explained his reasons for resorting to the above treatment, by stating that, as is so often the case, he was not called in professionally until the owner had already reduced the patient to a hopeless condition by the ridiculous use of numerous quack-remedies. A discussion ensued, assisted by the Honorary President and President as to the causes, symptoms, and treatment of impaction, and as a result the prevailing opinion was that the wisest course to pursue was one of patience and perseverance in dilating the intestinal contents with a plentiful supply of mucilaginous drenches and rectal enemas in preference to the use of dangerous drugs, which were only occasionally successful.

Mr. Spanton then followed with an interesting essay on the subject of "Purpura Hemorrhagica," in which he showed how, from the earliest times of veterinary writings, the irregularity of the symptoms, etiological obscurity and different degrees of severity of this disease had caused a varied nomenclature, stating that the one positive symptom in mild cases, otherwise difficult of diagnosis, was the appearance of purple spots on the Schneiderian membrane. After carefully describing the symptoms, he stated that the idiopathic swellings were due to the congested condition of the arterioles and capillaries, owing to vasomotor paralysis, pointing out the danger of asphyxia should extravasation of blood occur in the lungs. Amongst the many conditions which are supposed to be the causes of this disease, he gave special importance to that of improper hygienic surroundings, quoting Prof. Williams as his authority for saying that "Purpura was due to the absorption of products of decomposition extrinsic to the body, and that animals not fully recovered from some former debilitating disease were predisposed to it. He mentioned the difficulty in forming a prognosis, as frequently a patient to all appearances making a satisfactory and rapid recovery might at the next visit be found at death's door. The post-mortem symptoms were then fully described, and in conclusion he mentioned the various modes of treatment, recommending as preventive measures a stimulating course for patients suffering from diseases of the respiratory organs, such as influenza, accompanied as they were by a low type of fever. A long discussion ensued, in which the advisability of scarifying or fomenting the swellings was argued, it being generally concluded that the former course was unwise, whereas the latter, according to the experience of some, had frequently been of the greatest benefit. Dr. Duncan McEachran then pointed out what a large field this disease presented for elucidation. In his opinion the thickening of the bronchial mucous membrane, caused by an attack of influenza, prevented the air from properly reaching the blood, and as a consequence of this impoverished condition of the blood a relaxed condition of the walls of the smaller vessels was produced, permitting the transudation of the fluid into the cellular tissue at the most dependent parts of the body. He considered scarifying injudicious, inasmuch as the natural healing power was already very weak, and there was a great tendency for it to go on to gangrene, therefore every caution should be taken to prevent an abrasion. He fully indorsed the recognized treatment of chlorate of potash or turpentine, advising also the persistent use of hot fomentations. The chairman stated there was no disease like it in peculiarity, mentioning the shifting and sudden extent of the swellings and the apparently normal condition of the patient otherwise, as indicated by the pulse, temperature, and eyes. This disease, he said, should stimulate pathologists, and, as regards the treatment with an intratracheal injection of a solution of iodine, of which he had only one unsuccessful experience, he recommended this to the consideration of the experimental committee. He then held over the discussion on this subject, and, there being no further business, adjourned the meeting.

THE regular meeting was held on the 11th ult., in the library, the President, Prof. Charles McEachran, occupying the chair. There were also present Drs. Martin, Thurston, and Sugden, and a full attendance of members. After roll-call and the reading of the minutes the question was raised as to the binding in yearly volumes of the various magazines belonging to the Society, and the President appointed Messrs. Spanton and Wallis to look them over and report any numbers that might be missing, in order that they should be replaced.

Mr. Pfersick then reported an operation for the removal of a fourth upper molar in a horse, by trephining. He stated that the patient had been treated by a quack for three months for indigestion, and, no improvement being made, the owner had come to him. On examination he found the animal to be suffering from a decayed upper molar on the right side, and that there was only a slight extension projecting above the gum An attempt to seize this with forceps failed, owing to the stump breaking off; and, the owner insisting upon having it removed, Mr. Pfersick decided to trephine. This operation he performed successfully after placing the animal under the influence of chloroform, treating the resulting wound with daily administrations of antiseptic plugs and injections. Two months later the owner informed him that the cavity was healing up rapidly, and the general condition of the animal had improved greatly. A short discussion ensued as to the advisability of undertaking this operation frequently, the chairman stating that out of many experiences of his own but few had done well, owing partly to the neglect of attendants in keeping the socket clean and to the trouble caused by the opposite molar growing up into the vacant space. He requested that the case be again reported on.

Mr. Paquin followed with an essay on "Rabies." After tracing its history from the time of Aristotle to the present, he enumerated the various theories as to its causes, the most direct one being that of inoculation with the saliva of a rabid animal. The different periods of incubation, which he stated might extend from three days to a year or more, were attributed to the quantity of the virus inoculated, also the extent and locality of the wound. The symptoms of the raving form and the mute or paralytic form were carefully described, as was the manner in which the animal, being at one stage unable to swallow, would go into convulsions on being given water, which had been the cause of this disease being erroneously called hydrophobia. As regards differential diagnosis between this and certain other diseases with which it might be confounded, he especially pointed out the inclination of an animal to bite itself or any object coming across its path, and to swallow, before paralysis of the pharynx occurred, stones, chips, and other foreign matter. As preventive measures after inoculation, he stated that cauterization or excision of the wound, if performed within a reasonable time, had in most cases enabled people to escape, owing to the fortunate fact that the virus was very slowly absorbed. The wisest course to pursue, however, was at once to go to the nearest Pasteur Institute, where a cure and immunity for from three to five years could be obtained in 99 per cent. of the cases. A vapor-bath at 120° for fifteen or twenty minutes was also often successful. This cure was discovered by Dr.

Buisson thirty-five years ago, who, having been bitten by a rabid patient, and the symptoms being developed in himself, resolved to die in a vapor-bath, which, to his surprise, completely cured him. In conclusion, he pointed out the folly of killing dogs that had bitten people, when the proper course should be to keep them quietly in confinement to notice whether symptoms of rabies were developed or not.

Dr. Martin, in response to a request from the chair, then addressed the meeting. He stated that rabies attracted more attention in Europe, owing to its greater prevalence there. During a visit to Paris he had spent some time at the Pasteur Institute, and had been much struck with the affectionate manner of the afflicted animals; also their peculiar shrieking bark, which was so characteristic that people were able to detect a rabid animal by hearing it. It had been proved, he said, that the virus travelled along the nervous system, for if a subject were inoculated, and the nerve trunk then divided, it would often escape. Continuing, he described the method in which the virus was prepared for inoculation against the disease, and, with regard to the periods of incubation, stated that a bite on the face was most rapidly fatal.

The President then thanked Dr. Martin and congratulated the Society upon the opportunity they had had of listening to such an able authority. Considering the ground had been so well covered, he would not detain them beyond mentioning that it was not necessary to have a scar; the mere fact of having one's face licked by a rabid dog was sufficient for inoculation. The disease, he said, was most frequently seen in foxhounds and mongrels, owing to their habits of cohabitation, but during his practice in Canada he had never yet come across a case, though it was stated that an officer in Quebec some years ago had died from the bite of a rabid fox.

There being no further business the meeting was adjourned.

W. B. WALLIS,
Secretary.

MASSACHUSETTS VETERINARY ASSOCIATION.

THE regular monthly meeting of the Association was held at 19 Boylston Place, September 22d. The President, J. F. Winchester, called the meeting to order. Members present were: Drs. Burr, Emerson, Howard, Lee, Lewis, McLaughlin, Parker, Peters, Pierce, Rogers, Sheldon, Stickney, Winslow, and Winchester. The minutes of the previous meeting were adopted as read.

The Executive Committee reported favorably on the application of Dr. D. L. Bolger, of Cambridge, and by vote of the Association he was elected.

Drs. Winchester and Parker were given a vote of thanks for their report of the annual meeting of the United States Veterinary Medical Association.

The subject of a State Veterinary Bill was fully discussed, and Drs. McLaughlin, Howard, and Parker were appointed a committee on legislation.

Several interesting cases were reported.

Dr. Winchester showed two specimens taken from the choroid plexus of the lateral ventricles, which were covered with what looked to be a calcareous deposit. They were given to Dr. Frothingham for analysis.

Dr. Peters reported a case of strangles which, on post-moterm examination, showed the same deposit.

Adjourned at 10.45 P.M.

HENRY S. LEWIS,
Secretary.

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

THE meeting was held at Central Hotel, Charlotte, September 7 and 8, 1897. President Ellis called the meeting to order. Members present: Drs. C. R. Ellis, John Petty, H. G. Bessent, H. F. Bauer, H. B. Murray, J. W. Petty.

The President delivered an address which was very encouraging, and showed the interest he was taking in veterinary work and the advancement of the same in the State of North Carolina.

On motion, Dr. Charles H. Lockwood, B. S. Griffith, and B. E. Harper were elected members. The Secretary-Treasurer's report was read and adopted. The report on legislation showed that a hard fight had been made for our bill in the last Legislature, which only passed the Senate. The same committee was appointed to continue the work. The meeting adjourned to meet in Greensboro in December, 1897.

The second day was spent in visiting the stock- and dairy-farms and other places of interest.

J. W. PETTY,
Secretary.

THE GENESEE VALLEY VETERINARY MEDICAL ASSOCIATION.

VETERINARIANS OF ROCHESTER AND MONROE COUNTIES OF NEW YORK STATE FORM A SOCIETY.

A MEETING of the veterinary surgeons of Rochester and Monroe county was held at the Livingston Hotel on November 16th for the purpose of forming a permanent organization for mutual benefit and protection to the members. The following temporary officers were chosen: Dr. A. Drinkwater, Chairman; Dr. A. G. Tegg, Secretary, and Dr. L. R. Webber, Treasurer. After an extended discussion, it was decided to hold another meeting at the same place on Thursday of next week, to which an invitation to attend will be extended to the members of the profession in Monroe, Wayne, Orleans, Genesee, Livingston, and Ontario counties.

Those present at the meeting, other than the temporary officers mentioned above, were: Drs. Albert Tegg, John J. Tegg, J. C. McKenzie, I. W. Drinkwater, and E. Knight, of Rochester; Dr. O. B. French, of Honeoye Falls; Dr. Taylor, of Henrietta, and Dr. Palmer, of Scottsville.

The veterinary surgeons of Western New York held a second meeting at the Livingston Hotel on November 18th, 1897, and perfected an organization to be known as the Genesee Valley Veterinary Medical Association. Veterinarians were present from the surrounding towns as follows: Dr. A. Drinkwater, Rochester; Dr. W. G. Dodds, Canandaigua; Dr. A. George Tegg, Rochester; Dr. L. R. Webber, Rochester; Dr. Rich, Avon; Dr. French, Honeoye Falls; Dr. Taylor, Henrietta; Dr. Steiner, Bergen; Dr. Hill, Wolcott; Dr. Leffer, Genesee; Dr. Earl, Palmyra; Dr. Knight and Dr. R. Palmer, Scottsville; Dr. McKenzie, Rochester.

The following officers were elected: President, Dr. Drinkwater; Vice-President, Dr. Dodds; Secretary, Dr. Tegg; Treasurer, Dr. Webber; Censors, Drs. Rich, French, and Taylor.

The object of the association is to discuss the various questions of interest to veterinarians, and papers will be prepared by the different members and read before the association. The next meeting will be held at the Livingston Hotel, on Thursday, December 9th, when papers will be read by Drs. Steiner and Palmer.

PERSONALS.

Drs. W. E. A. Wyman and A. C. Manuel are doing post-graduate work at McKillip Veterinary College.

Dr. Joseph Hughes was called as an expert in the famous Luetgert murder trial in Chicago.

Dr. J. Wagner, of Tavistock, Canada, fills the rôle of Secretary to the Perth Veterinary Association.

Dr. E. M. Ranck, of Philadelphia, has identified himself with the Biological Laboratories of the Messrs. H. K. Mulford Co., as assistant to Dr. John W. Adams.

Dr. F. C. Grenside has entered private practice in New York City, after spending several years as manager of well-known breeding-farms.

Veterinarian G. Howard Davison, of Milbrook, New York, has been elected Secretary of the National Association of Live-stock Exhibitors.

Dr. R. S. Huidekoper has returned to New York City for the winter season.

Dr. E. A. A. Grange, of Detroit, Mich., has identified himself with the laboratories of Messrs. Parke, Davis & Co., engaged in the preparation of antitoxin and other biological products.

Veterinarian J. G. Stewart, of Brantford, Ontario, was recently elected President of the provincial master-shoers' organization.

Dr. Tait Butler fills the post of Secretary for the Mississippi Stock-breeders' Association.

The *Spirit of the Times*, of New York, of November 13th, in its New York Horse-show number, has a photo-reproduction of Dr. William Sheppard, the senior veterinary inspector of the show since 1890.

Dr. C. J. Sihler, United States meat-inspector, of Kansas City, Mo., has resigned his position to enter private practice with Dr. R. C. Moore as associate.

Among the veterinarians in attendance at the session of the American Public Health Protective Association were noted Drs. D. E. Salmon, Leonard Pearson, F. S. Allen, James Johnston, W. Horace Hoskins, C. J. Marshall, John W. Adams, and Frank Standen.

Dr. Joseph R. Jefferis, of Wilmington, Del., has removed to Florida, where he will devote his time and attention to an orange-grove and farming.

Drs. D. E. Salmon and Leonard Pearson presented excellent papers at the American Public Health Association, both of which awakened much interest, and will aid the advance of keener attention to our food-products.

Dr. O. C. Farley, of New York City, filled the place of the late Dr. Edward Loomes as veterinary inspector at the National Horse-show.

Dr. J. I. Gibson, of Denison, Iowa, fills the post of State Veterinarian of that State.

Dr. H. L. Ramacciotti, of Omaha, Neb., holds the position of city veterinarian and food-inspector and live-stock inspector for the Union Pacific Railway.

Dr. Lawrence Campbell, of Chicago, Ill., has retired from the practice of veterinary science, and will shortly enter upon other work that will take him from Chicago.

Drs. D. E. Salmon and A. D. Melvin, of the Bureau of Animal Industry, were visitors to Buffalo in November, investigating charges lodged against Dr. Nelson P. Hinkley, chief inspector of that port. These charges were the outgrowth of the discharge of several subordinates for conduct prejudicial to the service.

PENNSYLVANIA STATE BOARD OF VETERINARY MEDICAL EXAMINERS.

This board will hold their midwinter examination of all applicants for a license to practise in Pennsylvania at 10 A.M. on the third Monday and third Tuesday in December (20th and 21st) on the third floor at the northwest corner of Broad and Market Streets, Philadelphia. For further information address

Dr. S. J. J. Harger,
Secretary.
205 North Twentieth Street, Philadelphia.

W. Horace Hoskins, D.V.S.,
President.

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SESSION OF 1896.

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Grange, E. A. A., Agricultural College, Michigan.
Gray, Walton G., Dryden, N. Y.
Greeson, J. O., Kokomo, Indiana.
Griffin, G. E., San Antonio, Texas. (Ft. Sam Houston.)
Gunning, Thomas J., Neponset, Illinois.

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Hall, John, Falls City, Nebraska.
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Harrison, W. F., Bloomfield, N. J.
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Hogg, Edwin, Kirkwood, Pa.
Holden, E. H., Springfield, Massachusetts.
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Kay, R., 365 W. 36th St., New York City, N. Y.
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Smith, Theobald, Bussey Institution of Harvard College, Jamaica Plains, Massachusets.
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Stalker, M., Ames, Iowa.
Steddom, R. P., Galesburg, Illinois.
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Taylor, B. C., Hillsboro, N. Dak.
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Wattles, J. H., 1111 Cherry St., Kansas City, Missouri.
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Webster, R. G., Salem, N. J.
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Wicks, A. G., 429 Liberty St., Schenectady, N. Y.
Williams, W. L., Ithaca, N. Y.

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Wilson, Matthew, Mendota, Illinois.
Winchester, J. F., Lawrence, Massachusetts.
Withers, R. J., 2537 State St., Chicago, Illinois.
Wray, W. H., Beauchene, Fox Hills, Upper Norwood, London, Eng.
Wright, J. M., 1639 Wabash Ave., Chicago, Illinois.

Youngberg, A., Lake Park, Minnesota.

Zuill, W. L., 857 N. Broad St., Philadelphia, Pa.

HONORARY MEMBERS.

Arloing, Dr. Director Lyons Veterinary School, Lyons, France.
Bang, Prof. Dr. Royal Veterinary College, Copenhagen, Denmark.
Biggs, Prof. H. M. Bellevue Medical College, New York City.
Burnham, Walter L. Lowell, Massachusetts.
Chauveau, Prof. A. Director-General of Veterinary Schools of France, Lyons, France.
Dickerhoff, Prof. W. Rektor der Thierartzlichen Hochschule, Berlin, Germany.
Fleming, George. Higher Leigh, Combe Martin, North Devon, England.
Johne, Herr Prof. Dr. J. Thierartzlichen Hochschule, Dresden, Germany.
McFadyean, Prof. J. Great College St., Camden Town, London, Eng.
McEachran, D. 6 Union Ave., Montreal, Canada.
Michener, Isaiah. Carversville, Pa.
Mills, Wesley. Westmount, Montreal, Canada.
Möller, Herr Prof. H. Thierartzlichen Hochchsule, Berlin, Germany.
Nocard, Prof. E. Alfort Veterinary School, Alfort, France.
Perroncito, Prof. Royal Veterinary College, Turin, Italy.
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Thomassen, Prof. Dr. Reichsthierarzneischule, Utrecht, Holland.
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Welch, Prof. William H. Johns Hopkins University, Baltimore, Md.
Williams, Prof. William. New Veterinary College, Lethwalk, Edinburgh, Scotland.

ELECTED TO ACTIVE MEMBERSHIP.

BUFFALO, SEPTEMBER, 1896.

T. Bent. Cotton (V.S., Ont. V.C., 1882), Mount Vernon, Ohio.
Vouchers, H. D. Gill and Joseph Hughes.

William H. Gribble (D.V.S., A.V.C., 1883), Washington Court-House, Ohio.
Vouchers, E. H. Shepard and T. Bent. Cotton.

Charles H. Higgins (B.S., D.V.S., McGill University, 1896), Port Antonio, Jamaica.
Vouchers, D. McEachran and John M. Parker.

W. J. Hinman (V.S., Ont. V.C., 1876), Winnipeg, Manitoba.
Vouchers, J. Hawkins and M. Stalker.

F. W. Hopkins (D.V.S., A.V.C., 1886), Kansas City, Missouri.
Voucher, S. Stewart.

William Henry Kelly (V.S., N.Y. C.V.S., 1889), 195 Western Ave., Albany, N. Y.
Vouchers, C. D. Morris and N. P. Hinkley.

James Law (M.R.C.V.S., F.R.C.V.S., 1861 and 1877), Ithaca, N. Y.
Vouchers, W. Horace Hoskins and W. L. Williams.

H. M. Manly (V.S., Ont.V.C., 1891), Miamisburg, Ohio.
Vouchers, T. Bent. Cotton and E. H. Shepard.

Frank H. Miller (V.S., Montreal V.C., 1887), 110 Church St., Burlington, Vt.
Vouchers, W. Horace Hoskins and N. P. Hinkley.

John P. O'Leary (M.D.V., Vet. Dept. Harvard, 1895), E. Buffalo, N. Y.
Vouchers, F. H. Osgood and T. B. Rayner.

E. L. Quitman (M.D.C., Chicago V.C., 1891), 531 Jackson Boulevard, Chicago, Ill.
Vouchers, A. H. Baker and Joseph Hughes.

W. C. Rayen (D.V.S., Chicago V.C., 1890), Nashville, Tenn.
Vouchers, W. Horace Hoskins and A. H. Baker.

William H. Ridge (V.M.D., Univ. of Pa., 1888), Trevose, Pa.
Voucher, W. Horace Hoskins.

E. P. Schaffter (V.S., Ont. V.C., 1888), Kansas City, Missouri.
Vouchers, S. Stewart and T. J. Turner.

E. H. Shepard (V.S., Ont. V.C., 1888), 793 Doan St., Cleveland, Ohio.
Voucher, J. M. Wright.

S. B. Staples (D.V.S., A.V.C., 1893), Baton Rouge, La.
Voucher, W. H. Dalrymple.

S. J. Thompson (V.S., Ont. V.C., 1872), Carberry, Manitoba.
Voucher, J. W. Hawkins.

Herman Wellner (D.V.S., Royal Saxon Col., Dresden, Germany, 1888), 91 South St., Providence, R. I.
Vouchers, J. A. McLaughlin and F. H. Osgood.

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Voucher, W. H. Dalrymple.

W. E. Wight (V.S., Ont. V.C., 1883), Delaware, Ohio.
Vouchers, J. M. Wright and T. Bent. Cotton.

F. A. Zucker (D.V.S., A.V.C., 1896), 256 Morris Ave., Elizabeth, N. J.
Vouchers, A. T. Peters and F. H. Osgood.

MEMBERS-ELECT WHO HAVE PARTLY QUALIFIED.

Adamson, John H., 716 13th St., N. W. Washington, D. C.
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George, J. O., 6 S. 5th St., Camden, N. J.
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Kingery, S. H., Creston, Iowa.
Lloyd, Samuel E., Govanstown, Maryland.
Sharrard, E. H., Marysville, Kansas.

MEMBERS-ELECT WHO HAVE FAILED TO QUALIFY.

Bachman, B. F., Strasburg, Pa.
Dunphy, G. W. Quincy, Michigan.
Eliot, H. W., Ansonia, Connecticut.
Glasson, Samuel, Middletown, N. Y.
Fox, D. P., Sacramento, California.
French, A. H., Birmingham, Alabama.
Kelley,W. B., Patchogue, N. Y.
Lambert, H. D., Salem, Massachusetts.
McClelland, C. B., Lawrence, Kansas.
McLeod, E. J., 1149 Niagara St., Buffalo, N. Y.
Maclay, Thomas, Petaluma, California.
Robinson, L. A., 353 Forest Ave., Buffalo, N. Y.
Shipley, H., Sheldon, Iowa.
Shipley, L. U., Sheldon, Iowa.
Spencer, H. F., 224 E. St. John St., San Jose, California.
Willganz, C. J., 215 Carolina St., Buffalo, N. Y.

MEMBERS RESIGNED.

Armstrong, T. L., Indianapolis, Indiana.
Brownell, W. H., Brockton, Massachusetts.
Buckley, Thomas M., Brooklyn, N. Y.
Cowie, Charles, Ogdensburg, N. Y.
Fagan, Gulian C., New York City, N. Y.
Honan, J. H., Hammond, Indiana.
Johnston, Wyatt, Montreal, Canada.
Pope, G. W., Willimantic, Connecticut.
Pote, T. B., Terre Haute, Indiana.
Rose, Wm., Stapleton, N. Y.
Stuart, James, Beverly, N. J.

DROPPED FOR NON-PAYMENT OF DUES.

Ashe, Fred. W., Chicago, Illinois.
Attfield, William, 261 12th St., S. Brooklyn, N. Y.

Barnett, Otis, Edwardsville, Illinois.
Bates, Henry E., Waterbury, Connecticut.
Batten, E. C., 13 Burnett St., New York City, N. Y.
Bear, B. S. J., Mt. Joy, Pa.
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Curry, W. W., Hackensack, N. J.

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De Clyne, Theo., New Durham, N. J.
De Ronde, J. D., Nyack, N. Y.
Donnelly, J. T., Astoria, N. Y.
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Ernst, John, Leavenworth, Kansas.

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Stanwood, R. E., Freehold, N. J.
Stockwell, G. A., care Parke, Davis & Co., Detroit, Michigan.

Thompson, A. J., Terre Haute, Indiana.
Travers, Frank, Rhinebeck, N. Y.
Tuttle, A. A., New Briton, Connecticut.

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the mistakes of ignorance would never be allowed to stand as a stumbling-block to any endeavor that has for its object the uplifting and perfecting of the farrier in his art. And that this instruction may be uniform, thorough, and permanent, and the boundaries well defined by your co-operation, is the purpose of this report. The profession and the laymen have cried aloud for this instruction for humane interests, for interests of pleasure and profit; and the horseshoer himself has demonstrated his ability to receive and digest such instruction, and it remains with us to formulate a plan that will prove practical and enduring.

The call for a higher education among horseshoers is simply a part of the general demand for higher intelligence characteristic of this progressive age, and it is a tribute to their intelligence that they realized the drift of the times and were willing to avail themselves of the opportunity offered them.

The Master Horseshoers' National Protective Association was organized July 28, 1892, in the city of Cleveland, Ohio, seven cities being there represented—Pittsburg, St. Louis, Detroit, Cleveland, Chicago, Cincinnati, and Rochester. To-day it has sixty-six locals and about two thousand members. In 1893, at the second convention, held in Chicago, the master shoers realized that there was some show of truth in the allegations as to their ignorance of the structure and functions of the machine they were supposed to keep in repair. To realize was to act. They looked about them, but there were no schools opened to them where such instruction could be obtained. A committee of three was appointed to formulate ways and means to procure suitable instruction and look after the educational features of the Association.

This committee has labored harmoniously and enthusiastically, the ready affiliation of the members in their suggestions and plans giving great encouragement to their work.

A paper, the *Horseshoers' Journal*, was adopted, and members were encouraged to put their ideas and experiences in print, and a valuable acquisition to our practical literature has been secured in this way. Rules governing apprenticeship have been adopted; a four-years' course required, with an attendance at a school of farriery when possible. At the Detroit Convention, in 1895, an educational souvenir was issued, representing much of the best talent of the craft. It contains able articles on every subject connected with the trade, all written by men whose success and fame in their calling should make anything from their pen interesting and instructive.

In establishing schools or courses of lectures this committee appealed to the veterinary profession, and, to her praise be it said, she emphasized the sincerity of her professions on this subject by the giving of her best talent to the cause. During the winter months of 1894 and 1895 Philadelphia gave a regular course; Rochester, Detroit, and Cleveland had some lectures on the subject; and at the Detroit Convention, in October, 1895, the course was made more complete, but still subject to local conditions. The convention decided on a one-year's course, but the committee considered it best to make it two, the length of the course to be governed by the division of the lectures by the teachers. Philadelphia graduated her first class of twenty-two this spring, six failing to pass the required examination. Detroit has also graduated a class this spring. The desire for a course of some kind has been general, and local veterinarians have supplied the demand as best they could. During the past winter, as far as I have heard from, the following cities have been engaged in the work: Philadelphia, Rochester, Cleveland, Saginaw, Portland, Albany, Detroit, New York, Buffalo, and Chicago. The course as outlined, and as far as we know carried out, was on form, the anatomy and physiology of the locomotory apparatus of the horse, with pathological conditions that could be remedied by shoeing, dissections, when possible, the lectures illustrated by fresh specimens. The reading and discussion of papers on practical and scientific shoeing were a feature of the course. These papers were afterward published in the *Journal.* At the close of the term prizes were given.

The National Association issues a diploma to all graduates. The students were handicapped by the want of suitable text-books, but this difficulty will soon be overcome, as two are in course of preparation and will be ready at an early date. The fees have been governed entirely by local conditions, the main object in view being to make the course inexpensive, in order to encourage as many as possible to join the schools.

The apprentices were admitted free. Their wages are small, and while, as has been said, " there is a ladder leading from the gutter to the university," for them the bottom rounds are very far apart.

If this movement is to be successful it must be within easy reach of the masses; its honors must not be won by money, but through merit.

This, gentlemen, is my report of the condition of schools of farriery and the educational features of the Master Horseshoers'

National Protective Association up to this time. We realize, as pioneers in a new field, the many difficulties that beset our path; the ground is stumpy, and we are awkward at the plow, but we are rewarded by the assurance that some of the seed has fallen on good ground.

I am glad of this opportunity to offer the thanks of the shoeing fraternity to the veterinary profession for its assistance in this effort and to the individuals who have sacrificed their time and talents in our behalf. To the shoer this is not a question of silver or of gold, but of his good name.

Dr. McAnulty: Mr. Chairman, I have the honor of being the chairman of the Philadelphia school at which there have been twenty-two craftsmen horseshoers graduated. Our course in Philadelphia has been very thorough. We tried at the beginning to get the University of Pennsylvania to take up the course, but failing in that they gave us the use of their department there, and we secured the services of Dr. Harger and Dr. Adams to give the course. Our men were instructed on the skeleton of the horse, also the muscular system, blood- and nerve-supply, taking the leg from the hip and elbow down. Our men were at first a little bit slow to take hold of the matter, but when they got into the dissecting-room they advanced very fast. Our course lasted from February until May, three evenings in the week. It is the desire of the National Horseshoers' Association to have all colleges take up this course and help the horseshoers out of the rut they have been plodding in for centuries. It is not the desire of the Association to make veterinarians of these students. It is to teach them how to treat disease of the foot by shoeing and the making of pathological shoes, and to keep good feet on horses when they receive them in that condition. It is the purpose of the National Association to ask the co-operation of all veterinary colleges in this matter, so that we will place this abused art in a better position than it has ever been.

Dr. McKenzie presented a paper, as follows:

MR. PRESIDENT AND MEMBERS OF THE UNITED STATES VETERINARY MEDICAL ASSOCIATION: I appear before you to-day in behalf of a craft, the great majority of the members of which are groping their way in darkness, so far, at least, as a scientific knowledge of their trade is concerned. So deplorable has been the condition of the horseshoer in this respect that representatives from seven cities met at Cleveland, in July, 1892, to consider whereby he might be lifted up from the abyss into which he had been consigned by ignorance and unreasonable competition. From this meeting dates the organization of the Horseshoers' National Protective Association by a few earnest men who were willing to make some sacrifice for the elevation and dignity of their profession.

It is gratifying to know that since the foundation of the National Association there has been a very decided improvement in the science of farriery, hastened largely by the practical work of the Educational Committee from July, 1894. Schools have been established in the larger cities, where the horseshoer has been taught the anatomy and physiology of the horse's foot and leg, and thus qualified to work with his brains as well as with his hands. Rapid progress has been made, thanks to the position taken by the horseshoers as a class and to the unselfish efforts of their teachers; yet we confess ourselves unable to continue the good work properly without the assistance and co-operation of the veterinary profession, with which we are so closely allied. I believe the business ties that bind the two professions can be made still firmer without detriment to the veterinarian, and most certainly with advantage to the intelligent farrier who may be ambitious to lift himself above the rank and file of the craft.

Now, gentlemen, having stated our necessity, it is proper that I should suggest a suitable means of attaining the objects of our hopes. The establishment of a short course of lectures on farriery in all veterinary colleges is a practical solution; but this plan takes no account of the horseshoers in the smaller cities, who would be left to the cold charity of the world were not a special plan devised for their benefit. Heretofore, we of the latter class have been accustomed to call upon the local practitioner, whose splendid services in our behalf are fully appreciated and gratefully remembered; but he has not the time to devote to such a course of lectures, even admitting his fitness as a teacher. We have had lectures by our local veterinarians, each vieing with the other in the display of fluency, scientific knowledge, and oratorical ability; but the results have been of doubtful value because the aim was too high to reach those who had even studied the subject and those who were still in the rudiments. Some plan must be devised by which the young horseshoer may be enabled to practise with a better understanding of the scientific requirements of his work, especially in the State of New York, where a law has been enacted providing for an examination before a competent board. Thus it becomes the duty of the National Association to place within the reach of every young man who may intend to follow horseshoeing as a vocation the means of acquiring that knowledge without which, in some States, at least, he cannot be permitted to pursue his calling. I would suggest that in cities where we have no veterinary colleges the scientific branch of our art should be taught in the regular course of athenæum and mechanics' institutes, and that it should be made the duty of State Boards of Examiners to see that qualified veterinary teachers or lecturers be employed and their services properly remunerated.

One of the drawbacks to the facilities of our schools, as far as we have gone, is the lack of suitable text-books and literature for the instruction of the pupil between lectures. I am pleased, however, to learn that this deficiency will soon be in part remedied, two eminent members of the veterinary profession now having books in press. True, we have had many writers on the subject of scientific farriery, such as Robert Bonner, Professor Roberge, and R. Boylston Hall; but the value of their writings has been nullified to a great extent by the tirades of abuse poured out upon the poor, ignorant horseshoers, on the theory, I presume, that to give a man a chance to rise in the world you must first knock him down. But, gentlemen, we have been down long enough, and we want to grasp the uplifting hand of some organization older and stronger than our own.

You ask us why we come to the United States Veterinary Medical Association? I reply, because your organization antedates ours by twenty-nine years, having been formed in the city of New York, June 9, 1863. So, childlike, we appeal to you for assistance.

It is not our intention to make veterinarians of the horseshoers. By no means. But we do desire to raise the art of farriery out of the slough of ignorance; to educate its followers and widen the sphere of their usefulness among the horse-loving public; to make them something better and nobler than mere "hewers of wood and drawers of water."

But my colleagues on this committee have already covered the ground in their discussions of this subject, and we leave it to you to give the matter your kind and careful attention, assured that the results of whatever action you may take cannot but be beneficial to our craft.

The President: I can say that we have endeavored at all times to recognize the several branches of science identified with our own, and the every-day practitioner knows full well the importance of having a class of shoers intelligent and able to carry into execution the directions necessary in pathological horseshoeing. If there was no other reason than this, aside from the all-important one that these men look to some centre to obtain education, and that it can be best given by veterinarians, it would be sufficient reason why it was important enough for this Association to take it up.

Dr. Brenton: I would like to ask if the bill recently passed by the Legislature of this State had any beneficial effect at all and in what way?

A Member: As far as the law has gone it has not yet affected us. It is not in operation, and will not be until October 18th, so the advantage as yet we do not know.

Dr. McAnulty: This bill requires that any young man wishing to practise the art of farriery shall serve the required time of three years, and he shall also have a good common school education. He will not be allowed to go from one shop to another to learn his trade. It was a move in the right direction.

Dr. Trumbower: This is not a question that affects the horseshoer alone, but the veterinarian as well. He has as much to gain by teaching the horseshoer so he will know why he must place a given shoe on a certain kind of foot. The veterinary profession has much to gain and nothing to lose; and the two are so closely associated that it is very difficult to separate them, for which reason the Horseshoers' Association should be encouraged to the fullest extent by our profession in the step which they have taken to elevate themselves, and as we are in such intimate relation we will be of equal benefit to each other.

Dr. C. P. Lyman: I have been very much struck with the earnestness of the gentlemen who presented the subject to us, and the good way in which it was done. There has been a great deal said by them that needs to be thought over carefully. I know in the course of the business of the college with which I am associated, at Boston—we employ and have employed for years horseshoers—we have always tried to get the best men we could, and have also tried to pay them as large a remuneration as possible. I was very much struck years ago by the remark of one of the shoers to me about horseshoeing matters generally, in one direction certainly, and that was that he did not know what would become by and by of the horseshoeing art; he believed it would be a lost art because of the great difficulty of making the young men take a sufficient amount of apprenticeship. I am not in a position to know as to the value of that suggestion, but it is certainly in accord with the action taken by the gentlemen of this State in making it compulsory that hereafter there should be an apprenticeship of three years served in one shop before a young man could be allowed to leave and become a practical horseshoer. The connection between the veterinary profession and the horseshoeing art, we all know, is a close one. We all know the great satisfaction with which we meet the horseshoer who is able to grasp the suggestion that we make to him. We also know the great difficulty we meet in getting men to carry out our directions. We also feel that just in that place there is a loss to us coming. We may recommend that a shoe should be particularly placed on a horse's hoof, and we know if the instructions are carried out the results will be good. We find it hard to get a farrier who is able to carry out instructions that are given him. That is especially true in towns outside of a city where, the veterinarian is not able to stay and see that he carries out the instructions given. He not only suffers, but we ourselves suffer largely on account of the inability on his part to grasp the situation. If anything can be done to help us as veterinarians at that point, a great deal would be accomplished to save us more or less from criminations as the result of treatment which we have directed. I think if any help can be given to the horseshoers by the veterinarians we should be very gratified to give any in our power.

Dr. Cary: I would like to ask Dr. Pearson to state the instruction given in European shoeing schools—whether they limit it to normal or extend it to pathological shoeing?

Dr. Pearson: I do not know that I can answer that question satisfactorily. In regard to the instruction given in Philadelphia, it was given by their own organization and not by the veterinary department of the university. The veterinary department was requested to give the course, but they thought that it was not practicable to do so, and they offered the use of their dissecting-room to the shoers' organization, and it was therefore on the premises of the department that the course was given, and not by the department. Two of the professors were engaged in a private capacity to lecture to the horseshoers. The whole question is an extremely important and difficult one; it therefore should receive very thorough discussion before we take definite action.

Years ago European schools gave a course of different kinds of shoeing. In Vienna they gave seven kinds of shoeing—a course for seven different purposes. They conducted a first, second, and third course—a course for huntsmen, shepherds, and farmers, and one or two others. The result of it was that they developed a large body of partly educated men who were really quacks of the worst description. They had some basis, of course, for the assumptions they made, but were totally ignorant in regard to other points of which they assumed knowledge, and the effect was disastrous in Eastern Poland, Hungary, Russia, and to a certain extent in Germany. Progress was absolutely impossible under these conditions, and eventually all courses were abolished except that leading to a high veterinary degree. We should consider the importance of this subject as well as the situation as it presents itself to-day. I am sure everybody desires a shoer to have as much knowledge as he can use to advantage, but the advantage to which they can use it is the important question. There is no doubt at all but that a great many horses are ruined—a great many thousand dollars' worth of property is destroyed every year by shoers, and much of this loss can be avoided by proper shoeing schools. I had this question brought home to me very forcibly some time ago, being called to treat a horse for suppurating corns. I removed the diseased area, scraped it, and applied a pressure dressing. I went back the next day and saw, much to my surprise, my patient standing in a tub of dirty water. I inquired why my directions had been disregarded, found that a shoer had been there who said that he was a specialist on diseases of the horse's foot, and, being a specialist, of course he knew a great deal more about it than a veterinarian could possibly know, and the owner allowed a blacksmith to remove the dressing and place the horse in this tub of water. The case did not do well, for which I was very thankful, for, on the other hand, it might have done very well, and then the shoeing smith would have received a great deal of credit. The idea of removing the dressing was, he said, that there was a great deal of pus there, and the hoof could not get well unless the dressing was removed and the pus allowed to escape. I must say I regard this thing as a very critical matter, and one in regard to which we should be extremely cautious.

Dr. Hawkins: As possibly a great many of the members of this Association are aware, there has been some little attention given to lecturing to horseshoers in the State of Michigan; I as one of the active members of that Association have been somewhat opposed to it, but I do not want any member of this Association to think for one moment that I am narrow-minded enough not to give these horseshoers a little information for fear it is going to interfere with my general practice or my own financial welfare. My principal objections are placed on other grounds. I know in my own city of numbers of horseshoers there who have been in business ever since I have been in the city, who have been making a practice of shoeing horses with diseased feet, going still further and treating the diseases of the horse. I think we have one of our horseshoers in the city who is a graduate of the Detroit Veterinary College. He graduated about two years ago, and I understand he is a member of the National Association of Horseshoers. He has been advertising a hoof dressing, and states that he has been practising as a veterinary surgeon for the last twenty-five years, and has been using this dressing very successfully for a number of diseases.

Some of our horseshoers are making a business of advertising on their cards the treating of diseases of the horse's foot.

DISCUSSION ON TUBERCULOSIS.

Dr. Osgood: In relation to the systematic examination for the suppression of tuberculosis I would say that that was the first step we advocated to our Legislature. We did this for two reasons. One was from the geographical situation, the other that we might accomplish permanent work by going over the State once more. We thought if we began at the seaboard, keeping up a quarantine line all the time, that we were accomplishing something which would be permanent in its character; whereas if we examined animals here and there, in one county and then another, it would be impossible to put that county or section under proper quarantine restrictions. Consequently we made as strong a fight as possible to continue this class of work. We went through three counties, commencing at the seaboard, where there were but few cases, and every healthy animal was branded and a quarantine line maintained. The action of our Legislature prevented the continuance of that work.

I have seen a good many suggestions from papers in different States claiming that systematic inspection could not be pursued in their State. I grant there are many States so situated that they could not undertake it; possibly it would not be warranted. For example, in the State of Vermont we have one section divided from the other by mountains; on the eastern side a large amount of tuberculosis exists, while on the western they have not as yet discovered a case; consequently it would not be good business policy. Our systematic examination began in the section of the State where we have almost no disease and extended almost to the line where we know the disease is very prevalent. All of us recognize and acknowledge that tuberculosis exists, especially in the Eastern States, to a very great extent. The question is whether we are accomplishing all that we might accomplish by any other method than systematic examination. Of course, in removing the affected animal we remove that danger from the milk-supply.

Dr. Salmon: I am somewhat at a loss to treat this from a national point of view, because so far the National Government or the Department of Agriculture has not had a policy, as I understand; in fact, the feeling at Washington has been that the question of tuberculosis is too large to be taken hold of by the general government at present, on account of the vast extent of our territory, the enormous number of cattle, the spread of the disease all over the country, and the comparatively small force that would be available.

I do not know but what it could be done. I believe that a sentiment could be worked up that would get an appropriation from Congress to handle the matter, if desired; but it is a very large work to undertake to treat and act upon tuberculosis for its eradication from one single central point. I think undoubtedly it is the largest veterinary work that could be taken up, and it would be injudicious at this time to agitate in favor of a national control of tuberculosis until the veterinary service is developed, and until it is possible to cover the country properly.

Now, you do not appreciate that quite as much as I do. For the last four or five years we have been trying to inspect meat all over this country—not all of the meat killed for local consumption, but all that is killed to ship to foreign markets—and we find that it is a very large contract. We had an amendment made to our meat-inspection law which we thought would facilitate the work, which required that no beef should be exported unless accompanied by a certificate of inspection from the inspectors; but we find that there is a large number of places where beef is packed in small quantities where it is impossible to inspect it; we are inspecting by far the largest portion; but there is a great deal packed at smaller houses which we have found it impossible up to the present time to handle. So that until the meat-inspection work is thoroughly covered—until we have a force in the field trained for official veterinary work large enough to handle that subject respectably—I am not in favor of trying to take hold of another work which is so much greater, for we must appreciate the fact that tuberculosis inspection and eradication would be a much greater work than the system at present of discovering and eradicating pleuro-pneumonia. We must count on building up the veterinary service gradually, and just as soon as the field is covered in the meat line I am in favor of taking up some other question; but at present it is premature; the work is too large; and I am not in favor of agitating Federal interference, and am in favor of leaving it to the State authorities and to the city and municipal governments. I think they can handle the matter where it is most urgent—that is, they can take hold of the milk-supply of the city for the eradication of the disease in the large dairy herds from which the supply comes, and that is where the greater percentage of tuberculosis exists, and the local authorities have the means of bringing the pressure to bear which the Federal government has not. There is some advantage about doing these things through the Federal government, and one of the principal things is the financial aid, which is an essential, and it is one of the points which we cannot afford to overlook; but no matter how much money you have, unless you have the authority back of it; unless you are able under the law to go upon a man's premises and inspect his cattle whether he is willing or not, it is not much use to have the money. The Federal authorities cannot operate except with the co-operation of the State. I am glad to see that the feeling between the Department of Agriculture and the Bureau of Animal Industry and the State departments has been growing better ever since we have been doing the work. At first there was a great deal of jealousy, and it was troublesome work to get co-operation, and when we got it we never knew how long it would last, because every now and then there would be a rupture between the Federal and State authorities, and we would patch it up. The work of pleuro-pneumonia has been gradually improving, and at last there is more accomplished and more confidence, and I am happy to say that it looks now as though in a few years it would be possible to establish a perfect co-operation, where each would do its share and contribute to the final success.

Dr. Pearson asks me to say something in regard to the after-effect of tuberculin in unhealthy cattle.

The only after-effect of tuberculin is a shrinkage of the milk, which, I guess all of those who have made the test admit, occurs in a great many cases. This probably occurs partly from exciting the cows during the test and probably also partly from the effect of the tuberculin. It has in some herds, if the reports of the owners can be believed, lasted for some weeks. Some have claimed that it lasted during the whole milking period until the cow was fresh again, but I have doubts about that. I think probably the milk shrinks a week or two, depending on the after-care of the herd. As to the bad effects of the tuberculin, I do not know of any place where the disease has been started up and the feverish condition made permanent by tuberculin. On the contrary, it appears to me, where I have seen the substance used, that the tendency was to make the disease more chronic, to make it less acute; that there was more or less curative effect from tuberculin; and that, so far from its producing these effects, the milkmen claim that it has an opposite effect, and from the inquiries that I have made it appears to me that these statements, these charges against tuberculin, were the least reasonable of any that have been made, for it is certainly pretty well established that the effect of tuberculin is the opposite from increasing the acuteness of the disease. In the human subject we know the disease does in some cases seem to be made acute, and, while it is possible that it occurs in individual cases, it is very rare.

It is also claimed that tuberculin renders the animal more subject to tuberculosis; but that also, in my opinion, is an unfounded claim, and I believe that the effect of tuberculin is beneficial rather than injurious.

Dr. C. P. Lyman: In regard to the probable influence of tuberculin upon the supply of milk, Dr. Salmon has just told us that he has very great reason for believing that there is cause of a certain shrinkage after receiving the treatment or the test of tuberculin. I should like to ask if he has any reason for thinking that the treatment of animals while undergoing the test has anything to do with that, the actual use of the tuberculin? We know that cows giving a large quantity of milk by the treatment which they generally receive at the dairies are pretty delicate machines. We also know that it is the habit of users of tuberculin to restrict the food and water while undergoing the test. Is it not rather likely that of the two this sort of treatment is responsible for the lessening of the milk rather than the effect of the tuberculin? We know also that if anything occurs in the way of interruption of the food and habits of animals being used for the supply of milk it is oftentimes extremely difficult to get those animals back to the flow of milk before that interruption. In the experience of observers, if we believe the reports that are made to us, while we have received a number of complaints that the administration of tuberculin has lessened the supply of milk, we have received a number of definite instances in which the quantity of milk was absolutely increased. That is not guesswork in these reports. They have come—because we have got a number of them—they have come from herds wherein the greatest care was taken about the food and the amount of milk given—that is, the milk in its natural form was weighed and a careful record kept, and I say in those instances there was a number of reports given where the milk was absolutely increased after the administration of the tuberculin. May it not be, then, due rather to the interruption of the food and care and quantity of food than the tuberculin?

Dr. Salmon: I am glad to hear the remarks of Dr. Lyman. I suppose there is no one in the room who has had more experience and has come in closer contact than have the gentlemen who were upon the Massachusetts Commission in these matters. While I get the reports of the test, I do not get reports in a very large number of cases of the effects of the tests upon the milk-supply. The statements which I have made were based upon reports which I have received in a number of cases, and I had come to the conclusion, as I stated, that the shrinkage was partly due to the handling of the cows by people who were strangers, and feeding and watering at the time of the tests being lessened. I have also partly attributed it to the effects of the tuberculin, but I think the experience of the Massachusetts Commission is much more important than mine in that respect, because I have not come so directly in contact with the herds and with the owners.

The President: "The Danish system of controlling tuberculosis" is one of the topics on the programme, and we would like to hear from Dr. Pearson on that subject, as he is familiar with the foreign systems.

Dr. Pearson: Before saying anything in regard to the Danish system now in use in Denmark I should like to have a word in reference to the effect of tuberculin on healthy cattle as regards the milk-supply.

The herd belonging to the Agricultural Station of Pennsylvania has been tested with tuberculin. It is the practice there to keep a record of the milk and also the quantity of food, and a chemical analysis is made of the milk every morning and night; and it has been found there that the tuberculin-test results in the diminution of about 3 per cent. for the day following the test, but the next day the normal flow is re-established. This variation of about 3 per cent. is less than the normal variation on any other day when the test is not made, from some disturbance about the barn from putting in hay or threshing.

As regards the Danish system of using tuberculin, I am sure all of you have read the work of Professor Bang, and you understand the principles described there; but as the question has been delegated to me, perhaps I had best describe the principle very briefly.

The practice of Denmark is to test herds generally with tuberculin, and then, after discovery of tuberculosis, instead of destroying the cattle at once, those found to be tuberculous are preserved, but kept in separate stables or farms, entirely away from healthy cattle, and the premises disinfected and preserved from infection in every way. Sometimes it is not possible to place them in a separate stable, and they are kept in a separate department of the same stable, separated by a tight board partition and by entering at separate doors. From time to time these divisions of the herd are retested, and those showing physical evidence of the disease are taken out and destroyed. The milk from the reacting animals is used. Dairying is the principal industry in Denmark, and the milk is produced for butter for export into England and other countries. They find that by heating the milk from these reacting animals from 165° to 170° it makes just as good butter as milk that is not so treated, and it brings just as high a price in the market; and, in fact, sometimes the milk from the healthy cows is treated in the same way, and the quality of butter produced in that way is very good and commands the highest price in England. The milk seems to be harmless treated in that way. They are cared for by separate attendants.

The restrictions regarding the progeny are very stringent. The calves from these reacting cows are removed at once from the premises in which they are born; they are given milk from healthy cows or sterilized milk, and in that way they cannot contract it unless they are born with it, and in that way they develop into useful animals.

That plan, however, is a rather expensive one, but not as expensive there as to destroy all of the animals that react, as they would not only lose a large sum of money at once, but they would lose a large proportion of their dairy stock; they would lose a large proportion of the source of their national wealth, and it is thought that the country could not stand it.

From time to time the reacting cattle are retested, and it is found in three-fourths of the cases, I believe, that these cattle that reacted once react the second time; some react three times and not the fourth, and in this condition they are retained in these dairies and continue to give milk and produce calves until they develop tuberculosis in a more advanced form or until they die of some other disease. In that way Denmark is getting rid of tuberculosis at a comparatively small cost, and in Denmark the method is a good one.

The French system is very different. Denmark is a smaller country, but her source of wealth comes from her dairies. France is a much larger country and the number of cattle is very much greater.

In France the system that is adopted is this (it is a new system that has gone into effect since the last law was passed last year):

No cattle can be brought into France unless they are previously examined for tuberculosis by tuberculin. Whenever they find an animal that presents physical evidence of tuberculosis that animal is slaughtered, and the herd in which that animal is found is tested with tuberculin. All slaughter-houses in France are under government or municipal control, and all of the meat killed for consumption is examined at the time of the slaughter, and a careful record is kept of all, of the origin of the cattle destroyed; and whenever an animal that is tuberculous is found in the slaughter-house—after an animal is tested for tuberculosis—the owner has the option of what he will do with the animals that reacted. He is allowed to destroy them at once in one of the slaughter-houses, and if the disease is very slight the flesh is used, and if the disease is extensive the flesh is destroyed. He is not allowed to sell these animals or keep them where other animals are, and he must keep them away—he must avoid both direct and indirect contact with other animals. After six months the option expires, and the animals must then be destroyed. This is so the animals will bring a higher price in the market and can be used. They are then killed under government inspection, but if it is necessary to destroy the carcass the owner loses all—that is, by electing to keep the animal six months he forfeits the right to compensation that he is otherwise granted if it is destroyed in the slaughter-house. If the animal is killed at once, and it is found to be unfit for food, the owner receives one-half of the whole value of the carcass.

In Germany there is as yet no general system in reference to this test. Veterinarians use a great deal of tuberculin when they examine cattle, and it is supplied at a very low cost, and the use of tuberculin is favored in every possible way, but as yet the government has formulated no definite measures that are to be followed in dealing with tuberculosis.

Now, I think that it is well to call your attention to these foreign systems because they may teach us a great deal in our dealings with tuberculosis.

The question as to what shall be done in this country is probably the greatest question that the veterinarians have before them at this time. In small States, and especially where there is a great deal of tuberculosis, in such States as Massachusetts and the other New England States, it seems probable that there is but one profitable course for the public to follow, and that is to make a systematic inspection and separate the inspected territory and allow no animals to cross that line until they are inspected, until the entire State has been covered, and until all other animals that have tuberculosis have been destroyed or handled and treated in such a way that there is no way for them to continue to spread the disease.

But in larger States—in this State and Pennsylvania—I do not think that that scheme is feasible, as Pennsylvania is a State 350 miles long and 150 miles wide. In Pennsylvania there are over a million cows—that is, over a million cattle—not all cows. I think about a million and two hundred thousand. Now, you can readily see that if we were to attempt to make a scientific examination of all of these cattle the expense would be enormous. The time that would be required would be very great, and as Dr. Salmon brought out at a meeting of the State Board of Agriculture two years ago, that at the time the end of the State was reached another generation of cows would appear in the eastern end, and unless there were extreme measures adopted it would be necessary to begin all over again. If it costs fifty cents a cow to conduct the tuberculin examination—and it would undoubtedly cost more than that—the total for investigation and supervision would be considerably above a half million of dollars; and if 10 per cent. of these animals were infected—although I do not believe that 10 per cent. of the cattle of Pennsylvania are infected—the cost of compensation would be several millions of dollars, and it is utterly impossible at the present time to get large sums of this kind from the State Legislature for this purpose, so that a systematic examination of all of the cattle in Pennsylvania cannot be considered; but still, that is the proper system where it can be done, and it should be done.

Now the question is, What shall we do? Shall we adopt the Danish method? Shall we examine the herds supplying the cities with milk, and allow the animals that react to remain alive, and to provide that the milk shall be sterilized, and not sold until this is done, and to insist that the offspring of these animals shall be fed on the sterilized milk of reacting cows or from healthy cattle? This plan has been thought of in Pennsylvania, and it has been submitted to a number of herd-owners where they have applied for an inspection of their herds, and they have been given the option of having their animals killed outright, or the Danish method, and in every case they have taken the former plan.

While a great many cattle can be saved by the Danish method, these herd-owners have thought that it would not be a profitable thing to keep their cattle under these conditions, and it would not be profitable for the State to keep them under any other condition. They have maintained that if it were known generally that they had quarantined animals on their farms the reputation of their products would be destroyed, and therefore they have immediately chosen the other plan.

Now, we have commenced inspecting cattle in Pennsylvania in this way: Since it was impossible to inspect all of the cattle in the State systematically, and since it would be unfair to the taxpayers at large to select a certain small portion of the State and examine all in that portion, and examine all of the cattle supplying one city and leave all others, we have arranged to examine all herds of owners who apply for examination and who agree to observe certain restrictions in reference to the reproduction and redevelopment in their herds of any cattle infected with the disease. The application is made on a printed form, and in making the application the owner promises to observe every direction recommended that tends to the purification. If he has to tear down half his barn, or cut windows through his stables, or put in new floors, he agrees to do that before the examination is made, and he agrees also to procure his animals for restocking from as healthy a source as possible. Now, there is the weak point. We would like to require all these herd-owners who have their herds examined at public expense to purchase only such cattle as have been examined and proven free from the disease, but we find this thing impracticable. Sometimes it would cost more for a farmer to have his animals tested for tuberculosis than they are worth, so that we cannot enforce this provision always; but I hope we can persuade them in the near future that it will be more profitable to purchase animals that have been tested and proven free from the disease.

The Bureau of Animal Industry has done a noble work as regards the inspection of cattle for pleuro-pneumonia, and as regards inter-State meat-inspection to a certain extent. But it appears to me that their control might be extended at a small cost, so that all the Eastern States would derive a very great benefit. Most of the cattle that are brought into the eastern part of Pennsylvania, especially, come from the West. They come from Illinois, Iowa, and Missouri—a large proportion of them are purchased by the dealers in Chicago and brought East over the railroad lines that centre in Buffalo and Pittsburg. Most of them are taken from the cars for feeding at Buffalo and Pittsburg. At Pittsburg several hundred milch cows are unloaded and reshipped to points in Pennsylvania every month. The Bureau of Animal Industry has two inspectors there, and it occurs to me that by a very slight addition to the force these cattle might be detained a day or two longer and examined, then tagged in some suitable way and their condition certified by the inspector, and the purchaser of that cow would have a guarantee as regards her health. And if farmers were able to buy cattle in that way we could require them to buy them, and make the owner agree that he would purchase no animal that had tuberculosis. I think we could require that and get along very much better in our work, and the money expended would be to a very much better advantage.

Of course, it might not be necessary to extend this to all of the States, because it is undoubtedly a fact that in the Western States there is far less tuberculosis than in the Eastern.

Dr. Kilborne: Would the cattle be in condition to be tested while in transit?

Dr. Osgood: We tried to adopt that plan—that is, testing the cattle on the day of their arrival, and we found it was impracticable. We made it a rule that if people desired to bring cattle into the State of Massachusetts they must test them before leaving home or after they arrived, at their expense, after being there six days.

Dr. Pearson: We have no way of controlling that work. Now, I have heard where some cattle were purchased in Pennsylvania for a shipment to the New England States, and the dealer engaged a veterinarian who was not competent at all to make this tuberculin-test. Well, it was reported to me from a very authentic source that he used cold tea instead of tuberculin, and of course he got no reaction. I do not know whether the cattle were tested again. Since I have been in Buffalo I have learned by conversation with a veterinarian who was here yesterday that work of that character has been done in this State. It is not necessary to say where it was done in this State, but he informs me that he is sure it was done, that colored water was injected, and their temperatures were taken with a thermometer that contained no mercury.

Dr. Osgood: I think that it is the fault of the commissioners. We do not accept the certificate of any veterinarian unless he is vouched for by the State Commission. I was notified by telegraph of a matter similar to that—of some party who employed it and tried to find it out, and we had some further work from the man and made a complete examination, and I do not believe any such work was conducted. But it is the fault of the commission from the State where they were shipped. Even though fraud does enter into it, a large percentage of the work is accurate and honest.

Dr. Pearson: My point is that it would be more accurate and more honest if they were done under the Bureau of Animal Industry. I stated that the work was done in Pennsylvania. I would say that no one has been recommended by the Live-stock Board for testing cattle that enter into inter-State trade.

I have called attention to the plan that is followed in Pennsylvania, and suggested an improvement in connection with that plan which I hope will be considered carefully.

Dr. Trumbower: In my capacity as State Veterinarian I quite commonly run across cases of tuberculosis accidentally, and as I was appointed one of the city meat-inspectors of Chicago for the purpose of having the right to condemn animals that I considered unfit for human consumption, my attention has been frequently called to this question. I have only passed as fit for consumption animals which apparently were affected to only a very slight degree, and, we might say, of recent development—such ones as only manifested evidences of disease in one or two glands that were not intimately associated with muscular structure. Where a system of glands closely connected in their functions were affected, I unhesitatingly condemned such carcasses. Where we find two or more different organs involved we condemn such a carcass. Where there is evidences of emaciation where it is due from such an infection, we condemn the carcass regardless of the extent of the lesions presented. But we must always remember that in making examinations at the slaughter-house, especially where there are many cattle killed in a short space of time, little time is given, and it is very superficial in its character. We only have time to make an examination of the most prominent organs that are usually found to be affected in advanced cases, and for this reason there may be animals escape in which lymphatics imbedded in muscular tissues or in various portions of the body are affected, in order to take which we have practically to destroy that carcass as a matter of commerce. We would have to mutilate it to such a degree that it would not be fit to put on the butcher's block for retail purposes.

The question, of course, arises in the scientific mind that when an animal is affected at all by tuberculosis it is fully as dangerous in the initial stages as in the advanced cases.

We must have more evidence to prove the virulence of milk than we have now before we can convince many of the physicians that it is of a sufficient degree of danger to warrant radical measures looking toward the inspection and condemnation of cattle that may be slightly tuberculous. It is a question that is now agitating St. Louis. They adopted an ordinance there a few months ago for dairy, milk, stable, sanitary, and hygienic inspection. The first report was that in the city dairy farms twenty-one out of twenty-eight reacted, and everyone interested in the dairy business became alarmed, and they ridiculed the idea, and actually prevented the slaughter of those twenty-one animals that reacted, and they are still there, living and in dispute. The State apparently is powerless to act in the matter. We have one town in the State of Illinois which has an ordinance for meat-inspection. It is working well so far. All that has been done in Illinois so far has been by application of owners of dairy farms, and they agree to destroy all animals infected. They give directions free, and the owner is compelled to destroy all animals, subject to post-mortem examination, that react. We cannot afford to pay for all affected animals, and there is very little hesitation about destroying those that are affected, and out of 653 animals we tested from January until the middle of May we found eighty-nine reacted to the degree that we felt warranted in condemning them. They were all slaughtered, and I made an inspection of them, and in the record that we made and published we mentioned two mistakes. There was only one, I believe. Two out of eighty-nine were published as mistakes; and I think that is very creditable. We intend to go on with this work as fast as we can, and especially educate towns and cities to pass ordinances for themselves for meat- and milk-inspection, to be supervised by the town or city officials.

Dr. Hinman: I may say that we, in the province of Manitoba, have the best laws in reference to qualifications that are necessary to enable one to practice.

I may say that some three years ago I was appointed dairy inspector of the city of Winnipeg. Up to that time there had been no inspection of the dairies. I found about 150 different people selling milk to the city. Some were residents of the city and some were not. Upon examination I found that a very large percentage of the cattle were tuberculous, and so reported to our City Council. In examining into the law which gave us authority to inspect those dairies we found that the Legislature had not provided for the inspection of cattle by any method other than physical means. I saw that they required something further, and with the assistance of the Legislature—and I may say that we have been very fortunate in this line, because we have from one to five veterinary surgeons in the Legislature—to get anything that we required in this line. They very kindly gave us power, and the City Council passed an ordinance authorizing their inspector to test by tuberculin or any other system, in the city of Winnipeg, whether or not the milkmen sold from the cows. I entered into this matter, and have tested in the neighborhood of 2500 cows in the city of Winnipeg, and have found a great deal of opposition to the testing of the cattle on account of there being no recompense to the owners in case of their being condemned. But we have followed very largely the process followed in Denmark. In the first place, it is necessary, under the ordinance, for a person to get a certificate before he can sell milk. That certificate must contain a report as to the health of his cattle, the suitability of his premises as to drainage, height of ceiling, cleanliness of the premises, and utensils and everything connected with his dairy. Immediately I find his animals are diseased it is necessary for him before he can sell milk to dispose of any cattle that I have branded as diseased. It is necessary for him to remove them from his premises, to get them entirely away from the balance of the cattle, and in this way I may say that we have gotten rid of in the neighborhood of 400 cows in the city of Winnipeg.

I have found that there was very slight variation in the quantity of milk that was produced by those cows, and this slight diminution I have laid largely to the test and their surroundings—that is, having strange men introducing the thermometer every two or three hours. We find that our law works very well. We find that the dairymen, previous to their purchasing cows, bring them to my infirmary for testing, and there are no cows in the city of Winnipeg that are producing milk that have not been tested. Of course, the action is only local, but the authorities should take up these matters, and I think they will in the near future. Mr. Thompson, being a provincial veterinarian from that country, can tell us about it. But the City Council of Winnipeg is protecting the people from the use of milk from tuberculous cows in this way: We simply refuse a license to parties selling milk that have not obtained that, and if they do sell without it we simply bring them up before the police magistrate and have them fined for selling milk without a license. It works a little hard, but after dairymen get it to working in proper condition there is little expense to it for them or the city in keeping it so. We shall be glad to hear from Dr. Thompson on the question of provincial management.

Dr. Thompson: We have been paying considerable attention to this disease. My business is contagious diseases altogether.

In tuberculosis we started out a little slow; we did not force people to destroy all their animals that we found affected with tuberculosis. Our first experience to any great extent was with parties who suspected the disease in their herd, and we tested them four or five years ago with tuberculin, and destroyed them and said very little about it at the time, until our experimental farm was affected, and we so reported it to the Dominion Government, when they sent up their superintendent and we inspected their herd, and found that twenty-one out of twenty-eight reacted with tuberculin. We thought this was a very good opportunity to see whether the tuberculin-test was reliable. We thought the government could stand it to have the animals destroyed, and therefore we made a clean sweep of it and inspected them all and held a tuberculin-test. Every animal that reacted we found was affected on post-mortem, and so we continued to supply tuberculin to all the surgeons of the province, and the people are educated up to it now, and they report a case if they suspect it. They get a veterinarian to at once inspect their herd, and he tests them very cheaply; they are not allowed to charge over fifty cents up to a certain number—a dollar a head up to ten and fifty cents after that, and they soon get rid of their cattle that are infected; and we are going to have a law passed at the next session to have all foreign-bred animals—we have all thoroughbred brought in the province—tested with tuberculin before they are distributed throughout the province; and after having used tuberculin with the results I have obtained I have implicit confidence in it in the hands of men who use common sense in its application. I find that where an animal is much emaciated—where the vitality is low, where the animal is in the last stages of the disease—I find the very opposite—instead of reacting the temperature becomes lower; but where an animal may be very slightly affected, the temperature may go up very high; they say, therefore, it is not a positive test; but I can say that I have the utmost confidence in it, and, as far as affecting the flow of milk in the animals, I find that where there is a small amount given it has no bad effect upon the animal whatever.

Dr. Grange: It happens that I have been in a position to give it a good deal of consideration during the last year or so. I wish to say, in the beginning, that I was very much impressed about a year and a half ago in reading a remark in a bulletin which came from Professor Law, in which he stated, as far as tuberculin was concerned, that those who had used it most were loudest in its praise. I do not know that those were the exact words. But I wish to say that that is the impression which tuberculin has produced upon me after having used it in about a thousand instances. One reason why it has produced such a favorable impression is because I have had an opportunity in several instances of killing over the line, so to speak—that is to say, I had a number of cattle brought before me which I regarded as being affected with tuberculosis—four in all. One cow was in an emaciated condition. She looked like an animal that was in the last stage of tuberculosis. I applied the test. I gave her a double dose. She failed to react, and I held a post-mortem on her. I failed to find tuberculosis in that cow. It appeared to be a case of interlobular pneumonia. In another instance, of a herd of ninety-seven animals, one animal on physical examination was thought to be affected with the disease, and I thought so, too. None of those in the herd responded to the test, or reacted, rather. This animal was picked out to determine whether the tuberculin was correct in all instances. She was killed; her lungs were very much affected with a disease. I am free to say that when I examined that cow—her lungs—I did not know whether she had tuberculosis or not. She had mortar-like deposits in various parts of her lungs, but notwithstanding that it looked exceedingly like tuberculosis, and there was an impression produced upon my mind that it was not tuberculosis that I had to deal with. I took some of the material of this cow and examined it as faithfully and carefully as I am capable of with a microscope for tuberculosis. I could not find any evidence of the disease. I was not satisfied with this, and I made a very free test of inoculation into two guinea-pigs of this material and some of the tissue surrounding it. In the course of two months I made a post-mortem examination upon the guinea-pigs, and I failed to find any trace of tuberculosis, or, for that matter, of any other disease; so that I was forced to the opinion that this animal was not suffering from tuberculosis.

There are one or two points that came out that are not in accordance with my views. It is with reference to the doubtful cases; that seems to me to be one of the things which should cause us to approach the systematic investigation with some hesitancy. I had occasion during last week to test a herd of cattle—fifty-seven in all

—and these animals were left in good hands for future investigation. I first of all started with what I should regard as doubtful cases. I find that French authorities claim that those that do not respond less than 2.4° are not worthy of consideration. Well, notwithstanding the statements that come from abroad, I took the liberty of taking every animal that responded at all as being a doubtful case. I placed those in three classes. Among the doubtful classes I had one poll bull, which reacted 0.1°, and of course, lacking normal, he was placed in the doubtful class. Another animal responded 1.8°. I put her in the doubtful list. There were a good many of those that responded 2°; any below that went into the doubtful list. I retested these doubtful ones again, the first test being on March 30th, and in May I tested them again. The poll bull responded a little over 2.3°. He was then condemned. The bull was killed in the course of a few days, and after a couple of days' research I found two tumors of considerable size in a region which occurred to me as being tuberculous. I made an examination of the material from these two tumors, and, not being entirely satisfied with the result of that examination, I inoculated two guinea-pigs. Both of these guinea-pigs were affected most extensively with tuberculosis in about six weeks to two months. That appeared to me to be evidence that that bull was affected with tuberculosis.

With reference to the cow, she reacted 2.5°; and to answer one question which Professor Salmon raised with reference to tuberculin on tuberculous animals, I have to say that in her case it was most marked. In the course of about two weeks that animal was reduced from a big, strong, vigorous cow to a miserable, emaciated creature. She was unable to get up, and I will say that to prevent her from dying I killed her. She was most extensively affected with tuberculosis. Her lungs, liver, spleen, mesentery, and perhaps some other parts that I do not call to mind, were very extensively diseased. It appeared to me in her case that the last injection—the second injection—stimulated the progress of the disease in a very marked manner. That is the only case I can cite where the tuberculin seemed to create an injurious effect.

In another instance there were nine animals condemned. The first case I retested—a vigorous, short-horned cow—did not respond. She responded 2.6° on March 31st. Last week she did not respond at all. All out of the nine animals that were condemned responded except that one. I have her under my supervision at the present time.

A short time ago I had the pleasure—if I may call it a pleasure—of applying the tuberculin-test to some animals which had tuberculosis in a somewhat different way from others. The case was reported to me as being a case of pleuro-pneumonia, and the history was that the animals became affected and died very suddenly. One animal was only sick about two weeks, became very much emaciated, and died. Another animal was reported as being affected at that time, and was running down, as they told me—was going in the same path as the previous one. I went up and applied the test and found several of these animals affected with tuberculosis. I took a lot of the material of this cow that was running down back to Lansing to find where the germs went into the milk, and reduced this to about twenty gallons of milk. To see what the effect on guinea-pigs would be I inoculated several of them, and I found that all of them died within about twenty-four hours—a very short period. Well, the question arose as to what the cause of the trouble was, and we found there a germ—green pus—which seemed to destroy the guinea-pigs. There was considerable of this green material in the lungs of those cows to which I applied the test. I became impressed with the idea that the reason why these cows developed this disease and died so quickly was that this other germ had assisted this tuberculosis and it was really it that carried them off so quickly. That may or may not be the case, but that was the impression which it made upon my mind.

The President: There is one here who has taken a very special interest in this, and has held up the work with a strong pair of shoulders, and who has for a great many years studied this through a microscope, and been trying to devise ways and means of dealing with this subject, and has developed some very curious ideas in regard to dealing with it, and the relation of the public to the milk- and meat-supply. I am pleased to call on Dr. Clement.

Dr. Clement: It is true that we know very little more about this now than we did some time ago, and it seems to me, further, that if the money paid out in trying to eradicate the disease were spent in other ways the results would be more fruitful. I think we should by experiment in some manner demonstrate to the public the probabilities or possibilities of infection of human beings, if you like, through the milk of tuberculous cattle. It seems to me that if under the management of the United States Government large numbers of tuberculous cattle could be gathered together under one roof or on the same farm and have their own attendants, and if then a large number of small animals were fed upon that milk for a given time, it might possibly be determined as to what percentage of those animals became infected by using the milk of tuberculous cattle; then if we found that on this magnificent scale of experimenting the percentage was only a fraction of 1 per cent. or something very small, I think the public should know it. I think this organization should give the public as definite information as possible, and if they are being frightened they should know it. But if, on the other hand, the danger is great, and infection with tuberculosis from eating the meat and drinking the milk is frequent, they should know it. But the present method of eradication seems to me—I may be mistaken, but it really seems to me—like quarantining the United States against the introduction of cholera in some obscure port and leaving the others wide open. I think it is a matter that should be looked into and should be controlled, but I rather hesitate to believe that the State should foster a method which is so largely police in its nature. I think that probably as good results might be obtained if the public sentiment was so aroused that the public would compel the producer to prove that the food that he furnished was what he advertised—was pure milk if he does so advertise. I think undoubtedly that the State should exercise a certain police supervision over this matter. I think every man who advertises pure milk should use every means at his command and at the command of science to assure the public that it is pure. Such an assurance would be given by the certificate of a veterinarian or a medical man that the herd had been inspected and pronounced free from disease.

It seems to me, however, that the State through its officers should indorse that certificate; that that certificate should not be indorsed by the State unless the State had confidence in the inspector and more especially in his honesty. It seems to me that a small appropriation from each State would suffice to conduct this work in a proper manner; and while it would not compel farmers to have their cattle tested, it would compel them to transact their business in a legitimate manner, so that they could not sell anything but pure milk. It seems to me that we could obtain statistics in a few years which would form a basis for further police interference. As it is now, large appropriations are made, and it is quite possible that after this vast amount of money has been spent the mortality in human beings will not be decreased. I think these are matters which should be looked into, and some means should be fixed upon so that the danger to human beings from the consumption of milk and meat could be shown. We have a great deal of discussion as to where the lines should be drawn. All that discussion, in my opinion, has been based upon purely individual opinions regarding the subject. One man thinks this and another man that. One thinks that animals infected with the disease in certain glands should be killed, and another man only cattle which are badly affected. I am just as interested as anyone in this matter, but I think perhaps a more conservative method might be fraught with better results.

Dr. Pearson : I notice two things in Dr. Clement's talk that pain me exceedingly. The first one is that one of our brightest members has taken a retrograding step, and the second is that he has failed to keep up with modern scientific advancement.

Dr. Clement complains that no experiments have been tried upon man to determine the exact effect. (Interruption.) I do not wish to misrepresent Dr. Clement, but his assertion is that no experiments have been made to determine the effect upon the public of using the products of tuberculous herds. We cannot take a man and lock him up in a cage, in a laboratory, and feed him milk from tuberculous cows, or we could determine positively the effect of tuberculous milk upon human beings; and, therefore, we have to gain our information from two other sources: Feed it to animals and observe the effect upon these animals; and, in the second place, observe the effect upon the public as we can, and obtain as much information as we can from that. We all know that there are cases of experiments on record in which cattle having tuberculosis in various degrees, supplied milk which has been fed to animals of various kinds—to pigs, calves, rabbits, guinea-pigs—and we have evidence that cannot fail to convince anyone that the milk from tuberculous cows will cause tuberculosis upon the animals fed from that milk. Now, the question arises as to what cows will give tuberculous milk that will infect animals fed upon it—cows that have tuberculous udders will. In some cases cows having tuberculosis in other parts of the body, the udder being healthy, supply milk that is virulent and produces tuberculosis. In others the udder may be tuberculous, and no tubercle bacilli can be discovered in the milk with the microscope. But we must remember that tuberculosis is not a stationary disease. It is not a disease that tends to recovery. It-is true that men do sometimes get well, but that is the exception. In a vast majority of cases it is progressive and tends to cause death.

Now, when we know that an animal has tuberculosis, and we do not know where that tuberculous region is, are we justified in allowing that animal to produce milk and furnish it to the public? We do know that the disease the next day, the next week, month, or year, may have progressed in that cow to such an extent as to render the milk extremely virulent and dangerous. Now, knowing this to be so—we know that a cow remains in the dairy and is diseased in this way—how we can argue a question like that I cannot see. We must remove the possibility of human contamination.

Dr. Clement remarks that this should be done at the expense of the owner. If it were not of public importance, I think everyone would admit that this is the right view; but is it not of public importance to have as pure a food-supply as possible, and especially where it is sold in cities and is the sole food of infants, invalids to a large extent, and is a very important food of healthy people? If it is not a public matter, certainly the drainage of cities and the provision of pure water for cities are not public matters. If it is not of public interest to have a pure milk-supply, it is not a public interest to enforce any health measure whatsoever. I think the reasons are just as strong as for enforcing any other sanitary measure that tends to restrict disease and promote the public health. So, this being a public measure, why should a farmer be forced to bear the expense of the test and suffer from the loss of the diseased cows? If the farmer had been responsible for the introduction of tuberculosis in his herd, it would be entirely different; but the farmer in nearly every case bought the cows with the disease. He would not have purchased these cows that were tuberculous but for the lax measures regarding these matters. He introduced the tuberculosis unknowingly. And, further than that, farmers are poor; they cannot afford to be forced to do it. We would be without milk producers if they were obliged to do this.

On the other hand, if the farmers could afford to do it, and did it, it would be a great expense to them, and the price of milk would be raised greatly; and if the farmers were to bear the expense of extermination, it would raise the price of milk from six cents a quart, which is the price they pay in Philadelphia, to fifteen cents a quart, perhaps, and this would remove it from the reach of poor people who need it most, and the public would suffer in that way; and that is another way in which the extermination of tuberculosis becomes a public matter.

I think, Mr. President, that it is extremely unfortunate that any views of this sort that Dr. Clement holds have been expressed in this meeting. Of course, they are not indorsed by the meeting.

To-morrow the committee appointed for that purpose will submit resolutions and the convention will be asked to indorse these, and I cannot for a moment think that suggestions similar to those expressed by Dr. Clement will be considered.

Dr. Clement: It seems to me that a false interpretation has been put upon my remarks. I never thought of such a thing as experimenting on man.

I said this: that the evidence as to the frequency of infection was not sufficient; and I said I thought that, if a series of experiments on a large scale were performed by the feeding of smaller animals, the data so obtained could be applied to the possible infection of people by the milk; that is to say, tuberculosis in people and animals being identical, the ratio of infection might be the same in one as in the other. I had no idea of experimenting on human beings. My idea is in the main the same as that of the meeting, but I differ a little from some members as to methods. I think, if possible, we should get as many data as we can; and while, as Dr. Pearson says, there are a great many experiments made, I do not think there have been any experiments made on a sufficiently large scale to establish the ratio of infection. I think it is due to the public that somebody should conduct such experiments. So far as its being a matter of public interest in regard to the milk-supply, I fully agree with the doctor, but is it not admitted by all of those who have spoken that it is next to impossible at the present time, by any legislation that can be obtained, to make any impression toward the eradication of this disease in cattle? I think that encouraging a demand for pure milk among people would control to a great extent the milk-supply and improve it greatly. I am sorry that my remarks should have made such an impression upon the convention, for I am sure I am in accord with the sentiment prevailing here in regard to this matter.

The President: For a long number of years it has been supposed that the existence of tuberculosis was in the Eastern States, but recent investigation in the West have proven that it also has a foothold there, and it has created a great deal of concern among the dairymen of Western States, and I know of no one who has given more thought to the matter than our friend and fellow-member, Dr. Stalker.

Dr. Stalker: We have had some of this difficulty in Iowa, and from the observations which we have made there, and from the observations made by others, and the cases that we have had reported from the various portions of the country, I think we can congratulate ourselves that quite a little ground has been cleared of rubbish, and that preparations have been made of the more practical solution of the main problem. I believe it is practically settled, in the mind of every scientific man, that consumption and tuberculosis are one and the same thing. I believe it is settled in the mind of every scientific man that this is an infectious disease; that the bovines are most subject to this disease, and that milch cattle, above all others, are subject to it. That milk from tuberculous cows can and does convey the disease to susceptible people—that is, it is very liable when the udders are affected, and that it will convey the disease where it was entirely free from the tuberculous deposits—has been proven by very careful scientific men. That the flesh of tuberculous animals, the juices from it, may convey the disease, I believe has been demonstrated. That the disease is widespread through the country every man knows, and that our dairy herds are very seriously affected is a matter of common knowledge with everyone who has had practical experience with this subject. This and other facts have been settled in regard to it.

Now, as to the practical method of dealing with the question how we should dispose of this stock, what methods of protection shall be employed, there will be differences of opinion. They will differ in different sections of the country, depending upon the different amounts of it in the section, and many facts will have to do with the opinions of the men. I am best acquainted with conditions at home, of course. We have a territory of 53,000 square miles in the State of Iowa, and a bovine ownership of a million milch cows alone. I think no man any longer questions the reliability of the tuberculin-test, and in the present state of science this is the only method known by which the disease can be recognized in all its stages. This is my experience with its use, and I believe it is the experience of every gentleman who has pretty extensive experience with it. As to the method employed in our own State, when I was in charge of that work, as I was up to within the present week, I have attempted to introduce methods that I believed would be sustained and borne out by the public; but to attempt to apply the tuberculin-test to two millions of cattle is a pretty large job. It is impracticable, I believe. I have recommended in our own State that we control the disease in our dairy herds and in the breeding farms, as it may not be practicable to at once undertake the whole investigation and test of the herds.

The law in our State is that when any local board of health becomes aware that there is in existence any infectious or contagious disease they have a right to call on the State for inspection. The

State furnishes the inspection without any expense to the owner. We have the right to condemn and destroy. My policy has been to inspect all herds that were reported as suspicious. After having made the test I have given the owner the choice of voluntarily consenting to the destruction of the diseased animals or placing them in quarantine. In nearly every case the owners acquiesce that if they have cattle that are infected with the disease they are willing to have them destroyed; and it is remarkable in the great majority of cases that, rather than have the cattle placed in quarantine, they would have them destroyed, and in the post-mortem examinations they nearly universally express themselves as being more than satisfied with the results. In this way we have succeeded in eradicating the disease from several hundred dairy herds. These herds have shown a rather high percentage. In some herds 15 or 20 per cent. of them have proven to be tuberculous.

In one or two localities we have made more extensive investigations. In one town of about twenty thousand inhabitants all of the cows were tested that were supplying milk to the city, both in and out of the limits. Out of some thirty-odd herds that were tested only one of them was known to contain some sort of disease—all of the others were entirely free; and it is my belief that this would be about the state of affairs through the country if some system were adopted so that an attempt to conduct a close examination would imply the examination of a very large amount of animals where no disease exists.

The greatest danger, I believe, is in the dairy herd; and if every herd against which there can be any suspicion, and if all breeding farms can be placed under test, then the principal means of distributing the disease over the country will be cut off. I have found in practically every instance where I have conducted these examinations that the owner is able to trace the history of this disease in the purchase of bulls and cows for their dairy herds, and that has been the source of it; and if these dangers be cut off the disease would be very materially restricted, I think.

I am sorry that opinions such as have been expressed here by one gentleman, at least, have found their way into this convention. The objector always seizes on opinions of that kind, no matter how they are expressed; whether it is a firm conviction in the mind of one who gives utterance to them or not, the objector always seizes on to that as being the highest opinion of the whole body. It is a very bad policy to go into prayer-meeting with a prayer to the Almighty if there is one, to save the soul, if there be one.

TUBERCULOSIS OF BIRDS.

BY D. E. SALMON, D.V.M.

AVIAN tuberculosis is a disease with which the American veterinarian is not very familiar. Our profession has not often been consulted in this country concerning the diseases of birds, and a smaller proportion of the establishments slaughtering these animals are inspected than those of slaughtering cattle and hogs. We should expect, therefore, other things being equal, to have less knowledge of this subject than of the tuberculosis of the larger animals. Another reason for our lack of literature will probably be found in the comparative freedom of our poultry from this disease.

In Europe avian tuberculosis appears to be very frequently encountered. There are many accounts of it, but we can only accept those recorded since the publication of Koch's researches in 1884, as the diagnosis before that time is open to serious question. Koch demonstrated beyond doubt the occurrence of tuberculosis in fowls, and observed that the bacilli were extraordinarily abundant in the nodules of the intestines and liver, and that they were also found in large numbers in the contents of the intestine.

Sutton observed tuberculosis in grain-eating birds of various parts of England from 1879 to 1885, and states that "the occurrence of tuberculosis in these places may be regarded as showing that it is probably met with in most parts of England." Nocard says: "Tuberculosis is a frequent disease with birds of the poultry yard. It occurs with them in an epidemic form. It attacks fowls, pheasants, pigeons, turkeys, peacocks, guinea-fowls, etc., and even the small birds may contract it experimentally." In 600 autopsies of fowls made by Zürn sixty-two (10 per cent.) were found tuberculous.

This disease has been frequently reported in the United States, but in some cases the diagnosis was almost certainly incorrect, and in most others it is open to more or less question. Bray, of Kansas City, has recently recorded cases, but apparently no bacteriological examination was made. He refers to an outbreak which he thinks was caused by the ingestion of expectorations of a tuberculous man, and as this brings up the question, still contested, of the transmissibility of human tuberculosis to birds, we will not discuss this diagnosis at present.

Symptoms. The symptoms of tuberculosis in birds are obscure and not to be relied upon in making a diagnosis. There is a rapid and progressive emaciation, made apparent by the loss of weight, wasting of the muscles, particularly of the pectorals, prominence of the bones, and sharpness of the sternum. The comb becomes pale, the bird loses its animated appearance, and in the later stages may become somnolent. At this time a persistent diarrhœa appears, which increases in intensity until the subject dies from exhaustion.

The symptoms just enumerated are those observed when tuberculosis affects the internal organs. Often it is localized in the joints and bones, when it is revealed by lameness, articular swellings, and deformities of the bones. Occasionally there is ulceration, the pus of which contains many bacilli.

Lesions of the external mucous membranes and skin are frequently observed with parrots, but are rare with other species. They begin as small, grayish elevations which unite and form patches. On the surface of these patches are found thick crusts, hard externally, and soft and cheesy next to the tissues. If these crusts are detached, a red, granular surface is exposed. Sometimes the crusts, particularly near the eye or mouth, become horny and develop into excrescences several centimetres in length.

Pathological anatomy. The lesions in pheasants and poultry are generally found in connection with the abdominal viscera. The liver is most frequently and most severely affected. It is enlarged and filled with tubercles of various sizes, from whitish points to nodules as large as a pea. Sometimes there are large, round tumors, fibrous, firm, or softened at the centre, which may reach the size of a walnut. The tissue of the liver is more friable than in health, and ruptures leading to fatal hemorrhage sometimes occur.

The spleen is often invaded with small, whitish tubercles, and it occasionally contains large, hard, irregular, and calcareous masses.

Miliary tubercles are frequently found on the peritoneum, in which case ascites is also observed.

The intestines are often affected with infiltrations, miliary tubercles, nodules, and sometimes with large, tubercular masses in the walls, which diminish the calibre of the tube or entirely obstruct it.

The softening and breaking down of the tubercles on the mucous coat cause the ulcerations which are commonly seen in this disease, and from which the bacilli are disseminated in incalculable numbers.

The abdominal glands may be invaded and enlarged to the size of an egg.

In the lungs, air-sacs, heart, and pericardium are sometimes found miliary tubercles or caseous masses, but these organs are more rarely the seat of tubercular deposit than are those situated in the abdominal region.

The joints or the surrounding tissues are frequently the seat of inflammation leading to the formation of tubercular deposits, abscesses, ulcers, or fistulæ, from which ankylosis is a common result.

Generalized tuberculosis is not rare in which most or all of the organs of the body are affected, the tubercles being found even in the interior of the bones.

Lesions of the mucous membranes of the mouth, larynx, sinuses, and conjunctiva occur which were formerly attributed to avian diphtheria; but these, as well as certain horny tumors of the head and feet, have been shown to contain large numbers of tubercle bacilli. Some external lesions are the rule with parrots (the *Psittacidæ*).

Pathogenesis. The disease among poultry generally follows the introduction of new birds into the flock—that is, it results from contagion carried by diseased birds. Many outbreaks have been attributed to infection by the ingestion of human sputum. The possibility of such infection, although admitted by some authorities, is denied by others. It is certain that birds are not so easily infected experimentally with the tuberculosis of mammals, although this is sometimes accomplished. A careful study of the recorded evidence leads to the conclusion that avian tuberculosis is not an entirely distinct disease, but that by passing it for a number of generations through rabbits or other mammals it gradually acquires the characters of the ordinary tuberculosis. We cannot, therefore, deny the possibility of the infection of poultry by the sputum of human subjects, though we must admit that this does not occur as readily as some have supposed.

When Koch demonstrated in the lesions of fowls tubercle bacilli similar to those found in mankind, the identity of avian and human tuberculosis appeared to be established. His researches were promptly confirmed by Ribbert, Babes, Cornil, and Megnin. Nocard and Lemalleree published observations tending to show that poultry might contract tuberculosis by the ingestion of tuberculous sputum from human patients. The results of these researches all appeared harmonious, but they were soon followed by the experiments of Martin, who inoculated fourteen hens, two cocks, and two pigeons in the abdominal cavity with human tuberculosis without producing tubercles, and by those of Strauss and Wurtz, who fed tuberculous sputum to six hens and a cock for a period of six to twelve months, and at the end of this time found the birds were perfectly free from tubercular lesions, as shown by a careful post-mortem examination. The experiments of Rivolta, which soon followed, showed that there were very decided differences between the tuberculosis of fowls and that of animals. He pointed out that if guinea-pigs were inoculated with the tuberculosis of fowls, this did not lead to a general infection, but only resulted in an abscess at the point where the virus was introduced. It is, of course, well known that guinea-pigs are very susceptible to mammalian tuberculosis. He found that inoculations with rabbits led to similar results, although with this animal there might be developed a few tubercles in the lungs.

This interesting study was taken up by Maffucci, who found that fowls died with generalized tuberculosis if they were inoculated into the peritoneal cavity or veins with the tubercular products of another fowl. He confirmed Rivolta's conclusions as to rabbits, but stated that with guinea-pigs the result varied according to the manner of introducing the virus. If the inoculation was made in the subcutaneous connective tissue, the animal generally resisted after having had a local lesion. In other cases the animals died with marasmus at the end of five months. The autopsy showed atrophy of the liver and spleen, but no tubercles or tubercle bacilli. With intraperitoneal inoculations the guinea-pigs may die in from fourteen days to three months. In the case of rapid evolution the organs are infiltrated with embryonal elements and contain bacilli. In the cases which develop slowly there is only found atrophy of the liver and spleen. If the inoculation was made into the lung, it caused interstitial inflammation, the bacilli remained there, and did not invade the abdominal viscera. If the inoculation was intravenous, the guinea-pigs died in fifteen, twenty, or twenty-five days. Microscopic examination showed the liver infiltrated with embryonal elements, and contained numerous bacilli. Finally Maffucci concluded that mammalian tuberculosis was not transmitted to poultry. He inoculated twenty fowls under the skin, in the stomach, the lung, the peritoneum, and the veins. All resisted.

At the Berlin Congress, Koch announced that he had given further study to the subject, and he could not completely identify the tuberculosis of poultry with that of man.

Cadiot, Gilbert, and Roger, working together, have made eighty-five experiments, one series having been in progress nearly five years. In these they include fourteen fowls, seventeen rabbits, fifty-two guinea-pigs, and two dogs. They conclude that the tuberculosis of poultry is transmissible among fowls—inoculation in the veins or peritoneum being followed by a generalized tuberculosis which is soon fatal. The rabbit readily contracts avian tuberculosis, and death results in two or three months from generalization of the infection. The guinea-pig, which is more sensitive than the rabbit to human tuberculosis, is less susceptible than the latter to avian tuberculosis. It is the exception to see general infection in guinea-pigs as a result of inoculation with the tuberculosis of the gallinaceæ. In nearly every case there is either no tubercular lesion or there is a local, curable lesion at the point of inoculation, or the visceral infection is slight, discrete, and tends to recovery. The inoculation of the gallinaceæ with mammalian tuberculosis generally fails to produce fatal results. In most cases it is well supported, but in a few cases it excites some temporary disorder about the end of the second month, and in a few rare cases it causes an eruption of tubercular granulations in the viscera.

These investigators have also found that after passing the avian tuberculosis through a number of mammals it may become very virulent for the guinea-pig and cause with this animal the development of visceral tubercles as does mammalian tuberculosis. At the same time it may lose its virulence for the gallinaceæ, and become pathogenic for the dog, which is immune to direct inoculations. Notwithstanding the long periods during which the inoculations were continued, the virus had not become fixed and uniform in its action. Hericourt and Richet have shown that avian tuberculosis is not communicable to monkeys either by subcutaneous or intravenous inoculation.

Bacteriological study has also shown notable differences in the germs of avian and mammalian tuberculosis. The germs of the avian form stain in the same manner and develop on the same culture-media as the other. They are in general somewhat longer, more granular, more vigorous, and more resistant to destructive agencies. They develop more readily on artificial culture-media, and grow at once on glycerin-agar, while the human bacillus only develops on this medium after having been cultivated several times on serum.

The avian cultures are more moist, oily, corrugated, and soft; those from man are dry, scaly, verruciform, dull, and hard. The avian bacillus grows at 43° and resists at 65°, while the human bacillus ceases to grow at 41° and is killed at 65°. An avian culture six months old is still alive, vigorous, and new cultures may be made from it, while the human culture of the same age has lost all power of vegetation.

These facts are sufficient to show that there is a very marked difference between the tuberculosis as we find it affecting the gallinaceæ and that which is found in mammals; also, that it is quite difficult to infect poultry with mammalian tuberculosis, and not less difficult to infect most mammals with the tuberculosis of poultry. By far the greater part of the experiments for transferring the disease in either direction are absolute failures.

A very important point brought out by Cadiot, Gilbert, and Roger, and by Strauss, in recent investigations, is the difference between the tuberculosis of parrots and that of the gallinaceæ. Parrots are very subject to tuberculosis. Froehner reports that 154 of these birds treated at the Berlin veterinary school, from 1885 to 1893, 56, or 36 per cent., were tuberculous. Cadiot observed that of 35 parrots brought for consultation to the Alfort school 11 had tuberculous lesions. The chief characteristic of the disease with parrots is the frequency of lesions of the skin and of the mucous orifices. Such lesions are seldom seen in poultry and pheasants, in which the tubercles are for the most part found along the digestive tract and in the abdominal viscera.

The disease in parrots may be compared to certain forms of lupus. The lesions generally exist about the head, particularly on the cheeks, the peri-orbital regions, the commissures of the lips; they are frequently found on the buccal and lingual mucous membranes, and sometimes on the limbs, wings, or other regions of the body.

In the beginning the feathers drop from the affected part, the skin is thickened, becomes warty, and covered with crusts. Sometimes horn-like productions form, which may reach 1 to 5 centimetres in length and 1 to 2 centimetres in breadth at their base. Ulcerations are common, and sometimes tumors the size of a cherry, of a fibrous character, are found in the subcutaneous tissue. Later these soften at the centre and become caseous. When the feet are affected, swellings and deformities are seen. On the mucous membranes lesions are seen similar to those of the skin; they are gray or brown, hard, conical, or round elevations, which may considerably interfere with deglutition. The evolution is extremely slow, and unless they seriously interfere with the necessary functions of the organs life may be prolonged for years. Sooner or later, however, the birds become sick, cease talking, and die of emaciation and exhaustion. The post-mortem examination sometimes shows the internal organs to be free from infection, while in other cases the liver, spleen, and lungs are studded with tubercles, and even the joints and muscles may be affected.

The experimental study of this disease is very interesting. When guinea-pigs are inoculated from the lesions of the parrots, they contract generalized tuberculosis. Rabbits are less sensitive than guinea-pigs; dogs are susceptible; and fowls are not affected by it. These are the characteristics of mammalian tuberculosis.

Experiments have also shown that parrots are easily infected with human tuberculosis, and that the lesions produced in this way are similar to those seen in the spontaneous cases. In seven cases an investigation by Cadiot, Gilbert, and Roger indicated that the parrots had been contaminated by people. It appears, therefore, that the tuberculosis of parrots is often, if not always, of human origin. The bacilli are very virulent for certain mammals, as is shown by inoculation. The bacilli are found in enormous numbers in cutaneous productions, in the saliva, the nasal secretion, and sometimes also in the excrement. These germs are easily disseminated, and the parrots which receive their infection from man become in turn permanent centres of infection in the dwellings where they are maintained.

An observation indicating still further the danger to mankind of contagion from certain birds was recently recorded by Durante. The subject, a woman, seventy-one years old, without any previous history of disease, was seen among the patients of that well-known hospital, the Hotel Dieu. This woman had lost a daughter of tuberculosis in 1885, and was living with another daughter aged thirty-five years, who was rhachitic and probably tuberculous. In 1890 she was presented with a sparrow. In 1892 this bird, which had previously been in good health, appeared to be ill; it became dejected, irritable, and one day pecked its mistress at the root of the thumb nail with sufficient force to cause slight bleeding.

The illness of the bird continued, and it finally died without the nature of its disease having been determined. Five or six months after receiving the slight wound the woman noticed a crust forming at the injured point. As this lesion continued to develop, she came to the Hotel Dieu for treatment in April, 1894.

She was found to be affected with an absolutely typical lupus which had invaded two-thirds of the dorsal surface of the second phalanx of the thumb. There existed in addition a secondary nodule the size of a pea at the middle part of the anterior surface of the forearm, and two smaller ones in the fold of the elbow-joint. The lupus was treated by actual cautery and the woman appeared completely cured in December, 1894. The nodule in the forearm was extirpated and divided into two parts. One portion was examined histologically and showed the characteristics of tubercles, with numerous giant-cells, but it was impossible to stain the bacilli. The other portion was used for the inoculation of a guinea-pig, which died of generalized tuberculosis. From the spleen of the guinea-pig there were inoculated a pigeon, which was sacrificed at the end of a month and found free from lesions, and a rabbit which died at the end of a month of generalized tuberculosis. The woman was, therefore, affected with mammalian tuberculosis.

As no examination was made of the sparrow, it could not be positively affirmed that it was affected with tuberculosis; but the fact that it was affected with a chronic and fatal disease and the development of the lupus at the point injured by the bird's beak are strong presumptive evidence that it was suffering from this disease. As the tubercular lesions with birds are frequently localized at the commissure of the beak, and as the saliva may contain numerous bacilli, it is easy to understand how the inoculation might occur.

Whatever may be our views, therefore, as to the identity or the quality of the tuberculosis of mankind and of the gallinaceæ, it is demonstrated beyond question that certain cage-birds may contract human tuberculosis and become centres for its dissemination. This is a most important fact for veterinarians, for sanitarians in general, and for the public to recognize.

From what has preceded it is plain that outbreaks of tuberculosis among poultry and pheasants must in most cases be caused by infection from other diseased birds. The infection of individual birds by mammalian virus must be considered possible, but from our present knowledge we can hardly admit that virulent outbreaks among poultry can originate in this manner. On the other hand, tuberculosis of the gallinaceæ cannot be considered as very dangerous to mankind. Certain birds, such as parrots and other cage-birds, may, however, contract human tuberculosis, and in turn communicate it to mankind and other mammalia.

A study of the lesions in avian tuberculosis indicates quite plainly that the virus is taken into the body through the digestive tract. The location in the intestinal walls, liver, spleen, and abdominal glands, and the general freedom of the lungs from the tubercular process, make this conclusion almost incontestable. Parrots, on the other hand, are usually infected by the deposit of bacilli, probably from the atmosphere of the apartment, upon slight abrasions or wounds of the skin or upon the mucous membranes. When the mucous surfaces of the intestines of birds are affected, the bacilli multiply enormously, and the excrement becomes a very active source of contagion. As birds eat more or less of their food from the floors of their houses, or from the ground where they have been running, and where it is soiled with droppings, and as the drinking-water readily becomes contaminated by the beaks and feet of the birds, it is readily understood how the introduction of a single tuberculous bird may soon infect all the individuals in a poultry yard or pigeon cote.

Zoological distribution. Sutton, writing in 1886, stated that in 1881 he began to attend systematically at the Zoological Gardens, London, and found this disease to be excessively common. Beginning with the summer of 1883 the diagnosis was made on the results of bacteriological examinations. The average mortality among the birds in the gardens was about one hundred per month. He states that tuberculosis was almost peculiar to graminivorous and fruit-eating birds and vegetable feeders. It occasionally occurred in birds of prey, and was suspected in these cases to have resulted from feeding on smaller birds affected with the disease. The common fowl —the peacock, guinea-fowl, grouse, pigeon, and partridge—were found to be especially liable to tuberculosis. The rhea, or South American ostrich, was also very subject to it, as twelve of these birds were affected out of thirteen which died in the gardens. Water fowl and birds which live upon fish appeared to be exempt from its ravages. Storks and cranes contract it, and Hobday has recorded cases in the ostrich.

Diagnosis. There are a considerable number of pathological conditions found in birds which may be mistaken on ordinary post-mortem examination for tuberculosis. The air-sac mite (cytodites nudus) penetrates the trachea, bronchi, and air-sacs even to the cavities of the bones. They may be encysted and form rather hard miliary nodules, and they have even been found in nodules the size of a pea, situated in the lungs, kidneys, and liver. The connective-tissue mites (*laminosioptes cysticola*) are frequently found in the subcutaneous connective tissue of the neck, breast, abdomen, flanks, and thighs. When one of these parasites dies, its presence acts as a foreign body, provoking the formation of a miliary nodule, which soon becomes calcareous. Large numbers of such nodules may be encountered in the connective tissue of the parts mentioned. The *falciger rostratus*, a feather and connective-tissue mite of the pigeon, under certain conditions penetrates into the subcutaneous connective tissue, the peritracheal tissue, and even the visceral cavities, causing lesions similar to those mentioned as due to the mites of the gallinaceæ.

Nodules of the intestinal walls of fowls are caused by a small tapeworm (*tænia bothrioplitis*, Piana), and may be mistaken for lesions of tuberculosis. They are one-sixth of an inch or less in diameter and contain a greenish-yellow necrotic substance.

A form of coccidiosis caused by the *gregarina avium intestinalis*, Rivolta (*eimeria dubia*, Railliet), affects the intestines of fowls and some other birds. It is described as greatly resembling the diphtheria and the tuberculosis of birds. Cornil and Megnin class this affection as tuberculo-diphtheria. It appears as small, whitish points in the submucous coat of the intestine, or as a diphtheritic inflammation.

The *cercomonas hepatica*, Rivolta, causes the formation of yellowish nodules throughout the liver, varying from the size of a pea to that of a hazelnut. This disease has been observed in pigeons only.

Poultry, pigeons, pheasants, parrots, and various other birds suffer from mycosis of the trachea, bronchi, lungs, and air-sacs, due to the *aspergillus glaucus*, *A. nigrescens*, *A. fumigatus*, and to the *mucor racemosus*, in which there are produced numerous yellowish nodules varying in size, which might easily be taken for true tubercles. These are at first soft, but later become more firm and hard. They may also be found softened and caseous or even calcified.

In chronic cholera caseous centres may be found in the liver, which closely resemble in appearance the lesions of tuberculosis.

Diphtheria of the intestines has been confused with tuberculosis, but should be easily recognized by the stratified false membranes which differ radically from the ulcerations of tuberculosis.

All of these different conditions should be borne in mind, because any of them may be met with in post-mortem examinations of birds. A bacteriological examination and the discovery of the *bacillus tuberculosis* is the only certain and reliable post-mortem evidence upon which a diagnosis can be made.

According to Nocard, tuberculin may be successfully used to diagnosticate the disease with very valuable birds. He places the dose at 5 to 10 centigrammes for fowls, pigeons, and pheasants, and 10 to 20 centigrammes for geese, turkeys, and peacocks.

It is sometimes desirable to decide definitely whether a bird or a mammal is affected with avian or mammalian tuberculosis. This is determined by the inoculation of guinea-pigs subcutaneously, fowls and pigeons in the peritoneal cavity, and dogs' intravenously. For confirmation of the results of inoculation bacteriological studies may be made, but are only necessary in research work where the greatest accuracy is essential.

Treatment. The eradication of avian tuberculosis can only be attempted with a fair prospect of success when all the birds are sacrificed. Any individuals that are preserved are liable to have ulcerations of the intestines from which the bacilli are constantly distributed. There should, consequently, be no attempt to save any of the birds from an infected flock.

When the birds are all properly disposed of the premises should be thoroughly disinfected. The manure should be carefully scraped and swept together and saturated with a 2 per cent. solution of sulphuric acid. The floors and woodwork of the houses should be washed with boiling water, and after drying they should be saturated with a solution containing 5 per cent. of crude carbolic acid, or 3 per cent. of creolin, or one per thousand of bichloride of mercury. Any yards which are used for penning the birds should be well sprinkled with one of the same disinfectants. The feeding-troughs, drinking-vessels, and nests must of course be disinfected as well as the houses and yards.

After the cleaning and disinfection are accomplished the premises should be open to the sun and air for a month if possible before new birds are introduced. The bacillus of avian tuberculosis is much more resistant than that of human tuberculosis, and for that reason every precaution must be adopted to secure its destruction before the place is restocked. Cultures of avian tuberculosis mixed with sterilized water from the Seine were still virulent after fifty-two days at 8° to 12°, and after sixty-six days at 15° to 20°. At 70° C. it is killed in ten minutes. These data emphasize the necessity of careful disinfection and of allowing some weeks for sunlight and desiccation to aid in the process.

When the premises are being restocked care should be observed to receive birds only from healthy flocks, and it is well to quarantine these for at least thirty days. In building up valuable flocks this precaution is always advisable as a protection against the various forms of contagion that one is liable to introduce.

The danger of introducing tuberculosis by the sputum of human subjects is apparently not very great; and yet it is well to keep people who are affected with the disease away from the poultry yards and chicken-coops. The possibility of the disease being contracted by poultry from this source having been demonstrated, it is the part of wisdom to take such precautions as are required to guard against it.

DISCUSSION.

Dr. Osgood: I am very much interested in the paper, and feel that it is of the utmost importance to us at the present time to consider this subject; and especially so if we look to the eradication of tuberculosis. In our discussion in the Legislature this point has often been brought up in regard to tuberculosis of cattle and other animals when we were trying to get some legislation on the subject. They say, "What is the use of trying to exterminate tuberculosis when the poultry yard would again introduce the disease?" And I think that anything we can learn in relation to the poultry yards or the tuberculosis of birds is of the utmost importance in the consideration of the eradication of this very prevalent disease.

Dr. Knowles: In regard to the remarks that were made about the importance and vast proportions the industry of birds and fowls has reached, I saw statistics going to show that the poultry business leads by many thousands of dollars that of beef or pork. It seems strange, but it is true.

Dr. Winchester: I think I have seen in print a statement that the industry of egg-production represents more capital than any one industry in the United States.

Dr. Lyman: I am glad that the subject has been so ably treated, and I hope that some endeavor will be made to get this paper published and have it given the widest circulation possible. It seems to me that the necessity for this is very great. We keep hearing—

in Massachusetts, at any rate—the reports that hens have become infected with tuberculosis from the other animals and from persons, and a great long tale connected with it, all of which have no foundation in fact. I will also say that the State laboratory in Massachusetts has been engaged for a long time in experimental research. It was taken up because of the many reports of the transmission of the mammalian tuberculosis to birds. So far, I do not care to discuss here from memory the exact methods that have been undertaken in the laboratory in that work, but I can say that through the inoculation of mammalian tuberculosis in birds their efforts have been entirely unproductive of results.

Dr. A. T. Peters: The Secretary of the Relief Commission of Nebraska of 1894 reported to our department that in the western part of the State a great many people only requested corn for food for their hens—that that kept them alive; and the drought of 1894 has taught the farmers of Nebraska a great lesson. Heretofore the farmers and the public in general thought that the poultry industry was a small one. The Nebraska Experiment Station has stimulated the feeling in our State to send in the birds when they are sick or if they are dead, so we can get hold of them and hold a post-mortem and get statistics; and I will say that in 1895 our department must have received, dead and alive, somewhat over 500 birds, sent in from all over the State. We are gathering quite a little information on this subject, and we intend to do quite a little more this year.

"SOME EXPERIENCES IN THE SOUTH."

BY W. H. DALRYMPLE, V.S.

MR. PRESIDENT AND GENTLEMEN: When first asked by our worthy Secretary to prepare a paper for this meeting I hesitated, principally on account of the lack of time, partly on account of the trouble, and to some extent because it was extremely doubtful whether I would be able to be present to read it. However, after a second persuasive letter from Dr. Stewart, in which he mentioned the fact that several gentlemen were coming long distances from both North and West to contribute to the success of the meeting, and that he felt sure that something in the nature of a Southern experience would prove interesting to our Northern and Eastern brethren, I felt constrained to yield to his appealing request.

I trust, gentlemen, you will not feel disappointed when I tell you that I have not confined myself to the discussion of any one specific disease. It occurred to me that as professional work in the South, especially in my section of the country, might be new to the majority of you, a paper of a general or rambling character might prove the more interesting.

Until some seven years ago, when I was appointed to the Chair of Veterinary Science in the Louisiana State University and American Medical College, with my domicile in the city of Baton Rouge, the capital of the State, such a personage as a graduated "horse doctor" may have been read about, but by the majority of the inhabitants had never been seen, and for some time I was, in the eyes of those good people, a living, walking curiosity, presumed, no doubt, to be endowed with the supernatural ability to cure all the ills that animal flesh is heir to. In time, however, the novelty died out, and it was found that the qualified veterinarian, in human form, had none of the mysterious about his "make-up," but that he was simply an exponent of a noble branch of medical science, with a knowledge—from his training—superior to that possessed by the empiric, to whose tender mercies(?) and lack of knowledge had previously been intrusted the medical(?) care of their live-stock.

This experience has reference principally to the country districts in Louisiana outside the city of New Orleans, which city graduates have been located for some years.

Veterinary medicine and surgery, in the more Southern States, are still in their infancy; but through the influence exerted by the reputable graduate the people are beginning to realize the value of intelligent aid in the care and treatment of their animals, in contradistinction to the illiteracy and superstition of the empiric, who is usually in the habit of compounding his mysterious nostrums at certain phases of the moon and performing his so-called operations under similar lunar conditions.

The "quack" is still very largely in evidence, not only the native, but frequently we have men from further North, of the "flying specialist" type, who rarely make their appearance twice at the same place, but who usually make good use of their time and wits on their first visit, and succeeed in taking the proverbial "barrels" of money out of the pockets of the credulous and confiding stock-owner.

Unfortunately, we have as yet no State law to protect either the public or the profession against this class of imposition. In fact, I think the present existing conditions would hardly warrant legislation on this subject for some time yet. Outside of New Orleans there are few cities of any great size; stock generally, although improving very much of late, is not of a very high class, and in many cases the owners prefer to let them take their chances rather than send any distance for the services of a qualified veterinarian. This condition of affairs, however, is gradually changing as the value of our services becomes better known; but when I tell you that the State of Louisiana, outside of the city of New Orleans, can boast of only three or four qualified men, you can readily see why it is that any sort of individual who makes the merest pretence to a knowledge of the diseases of animals is pressed into service.

There is one section of the State, however, in which the live-stock is of considerable value, and that is on the sugar plantations, some single plantations owning mules to the value of $20,000 or more; and of course the maintenance of health among these animals, from an economic standpoint, is a matter of very great importance.

Mules have been cheaper of late, but not so long ago sugar mules averaged from $175 to $250 per head, which will give you some idea as to the class of animals. The sugar belt being easily accessible from New Orleans, a good deal of the practice is done by veterinarians resident in that city. I have had a good deal of experience myself with the sugar-plantation stock and its management, or perhaps I ought to say mismanagement, and to give a little of that experience might be of interest to the meeting.

I might state here that it is estimated that something like $100,000 is paid annually for sugar mules to replace those that die from disease and injury. This represents an enormous amount of loss, and it is evident there must be some substantial reason for it. Dietetic diseases are responsible for the largest percentage of the mortality, and gaseous or flatulent colic about heads the list. This is largely due to an almost entire want of knowledge of the anatomy of the digestive system and the physiology and chemistry of food and feeding. When first making investigations as to the predisposing and exciting causes of so many fatal cases of colic, enteritis, etc., I found an absolute lack of anything approaching a proper system of feeding. It was common on some plantations to feed the mules—during hard work—only once per day, and that at night, the manger consisting of a long, wooden trough and the mules all loose; the consequence being that, having to undergo such a long interval of fasting, the animals were so voracious that before their hunger could become appeased they had "bolted" a considerable quantity of grain, not at all or only imperfectly masticated, resulting in fermentation, from want of proper mixture with the various digestive fluids and the generation of gas; then, on account of being loose, the mean, pugnacious animals got more than their share and deprived the more docile of a sufficiency, besides inflicting injuries by kicking.

It is customary even now among a great many to feed twice per diem (at noon and at night), the last feed being sufficient in quantity for two or perhaps more ordinary feeds, to which the animals stand up until they feel themselves satisfied, which is well into the hours at which they should be lying down, resting their worn-out muscular systems.

The principal excuse generally offered for such a system is that of custom; and there is no doubt that the continuance of such absurd methods is largely due to the fact that the responsibility for the health and condition of the sugar-plantation animals is left almost entirely in the hands of illiterate and often superstitious individuals as hostlers, who receive mere nominal wages, which is the height of false economy and is extremely inconsistent when we consider that for all the other departments, such as in the field and in the sugar-house, experts are engaged at good salaries.

Another cause of injury and many deaths among sugar mules is pressure over the loins from plough back-bands, producing paraplegia. The negro ploughman, if not closely watched, will shorten his back-band; place it, in some cases, close up to the external angles of the ilia, and then hitch his traces up to it, causing the greater part of the work of lifting and traction of the plough to be imposed upon the lumbar region, where there is least support to the back. His object here is, when shallow ploughing is required, to make the mule do the work he ought to do in elevating the point of a plough that really ought to be at the blacksmith's shop to be put in proper running order. Another reason attributed to this style of gearing is that when a slow-gaited negro gets a fast-gaited mule he resorts to this method with the object of causing uneasiness to the animal and a consequent slowing of his speed.

On account of the want of information with regard to dietetics on the part of many of the owners, a great many of whom are city men, and the greater part of the responsibility of the care of the live-stock being placed in the hands of the illiterate hostler, we have frequent instances of disease and death from inferior quality of food as well as overabundant quantity. I can recall one in which sixteen mules were affected in the kidneys in various stages of disease, from insipid diabetes to suppurative nephritis. Before my arrival on the plantation five of the animals had died, the last one of which offered the opportunity for an autopsy. Each kidney weighed about six pounds, and on section revealed in the cortical portion numerous purulent abscesses. After making a number of inquiries regarding the food, I found that for two months previous the animals had been fed peavine hay which was almost in a state of nitrification. I subjected a sample to the action of sugar solution, resulting in the production of butyric fermentation, which you all know is putrefactive fermentation.

It might be interesting to notice here that the danger of this hay, which is extensively fed with us, is that if improperly harvested and cured or subjected to moisture as from a leaky barn-roof, fermentation may easily develop potassium nitrate. The plant is the "cow pea" (*dolichos sinensis*), and nitrogen predominates in the peas and the leaves, while potash is most abundant in the stems. In harvest-ing the hay, if the leaves are not saved the loss greatly depreciates its value as a food and increases the stems, with a superabundance of potash and a deficiency of nitrogen, and this excessive amount of potash in the stem of the vines also suggests most careful pains in curing, so as to prevent the development of this salt, which, when continuously fed for a length of time, produces excessive diuresis, resulting in more advanced kidney derangement.

It is not to be wondered at that such conditions as I have just alluded to did and still exist when we take into account the length of time the stock-owning public, and more especially in the agricultural districts, were in the hands and at the tender mercy of empiricism, with few if any in those sections competent to lend intelligent aid.

Changes are now, I am glad to say, gradually coming about for the better. The spirit of inquiry is taking hold of our more progressive stock-owners. Information is anxiously sought after with regard to the nutritive value of the various food-stuffs, nutritive rations, properly balanced rations, etc. On many plantations the feeding—during hard-working seasons—of the best and heaviest oats that can be procured, in which the necessary nutritive principles exist in the best balanced condition, is supplanting the system of exclusive corn feeding, with its excessive heat and fat-producing properties in proportion to its albuminoid or muscle-forming elements. The purest obtainable water-supply is being procured either from deep wells or through pumps from the vast waters of the Mississippi River instead of from shallow wells, generally situated at the lowest portion of the stable lot, and being contaminated by seepage from the surface. The systematic feeding and watering of stock is becoming to be looked upon as a necessity for the maintenance of health and the prevention of disease. And so, where ignorance and carelessness once largely predominated, intelligence in a great measure now prevails.

Although no State in the Union, I suppose, could produce relatively such an abundance of luxuriant native and other grasses as Louisiana, it seems paradoxical to state that we have to depend largely on the West for our hay-supply, some of which is of such an inferior quality that I am convinced it would not be bought for food in any other market in the country except the South. Of course, as education in the science of feeding progresses with us, other markets than the South will have to be found for inferior articles of stock-food.

From such causes we frequently get diseases of a mycotic nature

A few months ago I was called to investigate the cause of a disease among a levee contractor's mules that were at work repairing the levee or banks of a section of the Mississippi River. I found thirty-eight of the animals in hospitals suffering from parasitic stomatitis, with extensive ulceration and denudation of the mucous membrane of the under surface of the tongue and of the buccal cavity. Sores had been produced in the angles of the lips by the bits, which no doubt favored access of the fungus. The food—both oats and hay—which was being used and which was of a very inferior quality, was replaced by a superior grade, and in a short time, with the assistance of a little medication, the animals made a gradual and satisfactory recovery.

Among the contagious diseases with which we have to deal, glanders and anthrax are perhaps the two most important. We now have a State law for the control and eradication of contagious diseases, which was passed by the Legislature during the session of 1895, but it lacks completeness.

Previous to the passage of the act we had a great many outbreaks of glanders, chiefly imported from other States by unscrupulous horse and mule dealers, who took advantage of our lack of legislation on the subject as well as of insufficient knowledge on the part of the prospective purchaser. Control and extermination of outbreaks of the disease have usually resulted very successfully in the various parishes by the local authorities or police juries, as they are called, as soon as the disease was identified by some one competent to give an opinion, and all suggestions given with regard to the best sanitary measures to be adopted have always been strictly adhered to and carried out with very satisfactory results.

But although the disease has been combated very successfully after its appearance in the State, we would require an organized inspection staff, with inspectors stationed at various points, to prevent the importation of diseased stock over the State line. Such an organization would, of course, require a considerable appropriation, and as yet our people are not sufficiently alive to the necessity for such an expenditure.

Osteoporosis seems quite prevalent in the South. I have come across a number of cases, but personally I have not been able to do anything with the disease from a therapeutic standpoint. There is a wide field for our Experiment Station veterinarians in the investigation of this malady, as it militates very much against successful high-class horse breeding in the South.

We have annually a large mortality among our hogs, and unfortunately the term hog-cholera with us is so comprehensive that it covers all the diseases the porcine tribe is heir to. Although the hog industry in our State is assuming considerable proportions, and the herds of pure-bred animals are becoming quite numerous, the majority of the hogs are range animals—principally "razor-backs"—and their food consists of what they can get to eat in the woods. Large numbers of them die annually, mostly from gastro-intestinal troubles. There is perhaps less attention paid to the hog with us, from a hygienic point of view, than to any other of the domestic animals, and as the result of in-breeding and general unsanitary conditions and surroundings the annual death-rate is large.

During the months of May and June last the northern parishes of Louisiana experienced one of the most extensive and virulent, and, from a professional standpoint, interesting epizootics of anthrax that has occurred for many years. But before proceeding with the description I might state that sporadic outbreaks in the Mississippi bottoms are not at all uncommon. Last summer I was called to a large sugar plantation where three mules had died so suddenly that the owner had suspected foul play, but on seeing the cadavers I was suspicious of anthrax. An autopsy on one of them revealed pathognomonic post-mortem symptoms of the disease, which a subsequent microscopical examination verified, by the identification of the bacillus anthracis in the blood. The mules were being fed crushed corn and rice bran—the former a product of the plantation; the latter an imported article. I suspected the bran as a probable vehicle for the spores, as the rice might have been raised on a place that had previously been infected. I advised the discontinuance of the bran, for the reason just stated, and no more deaths occurred; but a fortnight afterward the bran was again inadvertently resorted to, with three or four more deaths resulting. After this the bran was entirely discarded, and no more fatalities from the disease have since occurred. Of course, the necessary sanitary precautions were adopted to check its ravages.

In the large cotton-growing sections in the northern portion of the State they have, generally in the spring, a condition in their mules which they consider anthrax or charbon, as it is termed by our French population. It consists of an enlargement, often extending from the inguinal region to the xiphoid cartilage of the sternum, and in some cases to the carniform cartilage, but with no apparent constitutional disturbance whatever. Their treatment is extremely heroic, or, perhaps a better term would be, barbarous. Hot shovels, concentrated lye, the part saturated with turpentine and then set fire to, are examples, and if the poor animals survive this they usually recover, but with an eschar that they carry with them until death.

The condition is really one of anasarca, the result of indigestion. As soon as the animals have finished the work of cultivation they are turned into the cotton-fields—after the cotton has been picked—to gather their living in the rows, in which there is a considerable quantity of grass, and for two or three months in many cases they receive no grain food whatever. When the time arrives in the spring for the ground to be broken the mules are brought up and without the slightest preparation are given full, hard-working grain rations.

During the prolonged interval between grain-feeding the system has become so inured to the light, easily digestible alimentation—which toward the last is somewhat scant—that it is generally more or less in a state of atony. The sudden change when in this condition to a more highly stimulating nitro-carbonaceous grain ration, requiring greater powers of digestion, produces indigestion, and from overstimulation we have transudation of serum from the walls of the atonic bloodvessels, gravitating into the subcutaneous tissues on the lower portion of the abdomen.

As I have said, many believed this to be charbon, simply on account of the swellings; and if the animal—which really would in most cases recover without any medical help—survived the treatment, they were firmly of the opinion that they had succeeded in curing the disease. Such is an example of the state of our knowledge regarding some varieties of disease and its treatment.

The genuine outbreak, however, which I previously mentioned and wish now to describe, has perhaps done more to bring into prominence the regular graduate and the veterinary profession in our section of the country and to upset the calculations of the illiterate "charbon doctor," with his vaunted "sure-shot" charbon nostrums and reduce him to his proper place in the eyes of the intelligent class of people than anything that has happened within the last decade. It has been said that it takes a calamity to wake our people up, and the recent epizootic could be viewed as little short of that. The first indication I had of this outbreak was a dispatch from the general manager of a large cotton-planting syndicate, owning something like thirteen plantations, with four to six hundred head of mules. On one of the outlying properties, which was first affected, the disease was in a most virulent form, and the ultimate loss on this place was nearly if not altogether 100 per cent.

Probably the most interesting point is that the outbreak was of cutaneous or carbuncular form, with flies as the transmissive agents. The disease spread with such rapidity that it was in a very short space of time to be found doing its deadly work in some eight or ten parishes. The people were almost panic-stricken, and in their helpless condition, for want of intelligent information and from being largely in the hands of the "charbon doctors," who expected to reap a rich harvest, their efforts were directed solely to the treatment of individual cases, without the slightest idea of trying to stay the ravages of the disease by any attempt at any modern system of sanitary science. Charbonous carcasses were simply hauled out to the woods, where range animals were grazing, infecting the surrounding country, besides presenting laboratories where flies of various specimens could obtain fresh virus for distribution. This dangerous procedure was adopted in the early part of the outbreak, with the result that animals of all kinds became affected, either from grazing over the infected pastures or devouring the flesh of the charbonous carcasses. It was reported that the deer in the swamps were succumbing to the disease, and several authentic cases of the disease in human beings were recorded, some proving fatal.

The disease having extended to range animals, which were altogether beyond control, the more domesticated stock, as the work animals, cows, etc., only could be dealt with as regards treatment.

Realizing at once the gravity of the situation and the likelihood of an extensive spread of the disease, I at once suggested protective inoculation with the Pasteur anthrax vaccine, to try to protect the work animals, so that the farming operations would be delayed as little as possible. Fish-oil emulsion was sprayed daily over the animals to prevent the attacks of flies, which were in alarming numbers, and the police juries of the various parishes passed a sanitary ordinance compelling the cremation of all charbonous and other carcasses.

The therapeutic treatment followed was that suggested by Duvaine of an iodine and potassium iodide solution internally. Broken doses of mercurous chloride combined with a saline were also administered. The external enlargements—as early as possible—were injected at various points, by means of an ordinary hypodermic syringe, with a 5 per cent. aqueous solution of carbolic acid, with two grains of bichloride of mercury to the ounce of the solution. This treatment, which was to destroy infection in the local area and arrest absorption, had been suggested by Arnoldow in malignant pustule in the human being. Unfortunately it was impossible to procure sufficient of the protective lymph at the outset to inoculate such a large number of animals, as the entire supply in the stock of the Pasteur laboratory in this country became exhausted, and Europe had to be drawn upon to complete the orders. Gradually the flies seemed to disappear or change their location; the disease became very much less virulent, and whereas in the beginning it claimed from 75 to 100 per cent. as its victims, toward the last 75 to 100 per cent. seemed to recover, even without vaccination.

In some of the infected districts visited I witnessed a most interesting and I should think most unusual spectacle, but whether or not it was the result of anthrax would require to be decided by experiment. In some fresh-water lakes, into which charbonous carcasses had been thrown, large quantities of fish could be seen floating on the surface of the water, dead. It has generally been considered that fish, owing to their lower temperature, were refractory to the disease. But here we had a temperature at the time of 90° F. or over, with the temperature of the water relatively high, which may have been sufficient to bring about changed conditions of vitality, and if the fish were at all poikilothermic, may it not have been possible and even probable that they became infected and died of intestinal anthrax? This is a very nice as well as a very important point, which is worthy of further investigation, because, if such is the case, fish, under such conditions, may become a very important factor in the spread of anthrax, not only to the lower animals, but to man himself.

The section of country over which this outbreak spread is flat, thickly wooded, subject to inundation, and very swampy.

Although flies of all kinds are always very numerous in summer, one of the species of "tabanus, the 'tabanus lineola,'" was more so this year than had been noticed any year within the recollection of some of the oldest inhabitants. In fact, they were to be seen in the dwelling-houses in greater numbers than even the "musca domestica" at the height of summer; and during the time of their greatest numbers animals were positively covered with them, and blood could be seen trickling down wherever the mouth-parts of the fly had been withdrawn.

The fly here being the transmissive and the most important agent in the spread of anthrax, the thorough study of its life-history should engage the serious attention of the student of economic entomology. So far, I understand, the study of this species has not been satisfactorily prosecuted, on account of the difficulty of obtaining the ova and breeding the flies artificially, although it does seem to be known that the larva lives in damp earth and in water and that the adult is abundant in the neighborhood of swamps.

Many points of interest crop up as to the various ways, besides inoculation, it is probable for the fly to propagate the disease. I do not think it is a settled point whether or not the disease kills the fly. It is probable that the excreta of the fly may contain bacilli which afterward sporulate on the grass or herbage which is eaten by stock, etc. These and other points are worthy of elucidation for the protection and benefit of stock-owners, at all events, along the region of the Mississippi Valley; and if some means could be discovered for the destruction of the ova or larvæ of this and some other species of bloodsucking flies, it would be a tremendous boon to the inhabitants of my part of the world.

This has been one of if not the most extensive outbreaks of anthrax on record, so far as I am aware, brought about by the external or cutaneous mode of infection.

I feel, gentlemen, that I have occupied a great deal too much of your valuable time with a paper which contains so little of a scientific nature, but, if I have by chance touched upon any subject which may be of interest or perhaps benefit to any of you, I will feel fully compensated for any little time or trouble I have taken in its preparation.

DISCUSSION.

Dr. Rayen: The description he gives of feeding animals in Louisiana prevails to a great extent also in Tennessee. Of course, among some of the finer breeding establishments they have made great progress and have adopted modern ideas in regard to those subjects; but the work stock on the plantations is treated in Tennessee about as described by the essayist in Louisiana. The barbarous treatment described is also prevalent in Tennessee in the numerous diseases affecting animals, and quackery is practised there by *flying doctors* who are sent there from the North, and in some instances they take large sums of money from the rural districts.

Dr. Clement: The subject of anthrax is one of great importance, to my mind. It has caused me more worry than any of the other diseases since my appointment as State Veterinarian. We have had there two outbreaks of anthrax near the Delaware line. In the first the owner lost several cows and, I think, one or two horses. The animals were apparently well in the evening and dead in the morning; that is, they did not die all at once, but as each individual animal was attacked death followed between evening and morning, as a rule. The clinical symptoms were those of anthrax. The post-mortems were held and the biological analysis was completely made at the Delaware Experimental Station, at the instigation of Dr. Mackie, and therefore it was proved beyond possibility of a doubt that it was anthrax. There was no history of the pastures or farms of the neighborhood obtained. This man had not bought any cattle lately. There had been no new introduction of stock upon his farm. Therefore the question was, "How could he possibly have gotten the disease on his place?" We found upon investigation that he had recently bought some glass fruit-jars. We found upon further investigation that the man from whom he bought these jars must have bought them from Pittsburg or from some place thereabouts, or in New Jersey, where anthrax is very prevalent. These jars were packed in marsh grass, as we found upon further investigation, and we found that this was cut from pastures in New Jersey where anthrax had been prevalent for some time. He had fed some animals upon this grass, and they died from anthrax. Now, the important part to my mind is the fact that the Department of Agriculture has apparently no power to stop the dissemination of this marsh-grass infection throughout the country by the packing of these fruit-jars. We have had other outbreaks of disease in the State, which from their history may possibly be anthrax. A man lost two horses near Baltimore. It was found that he had bought some groceries by the barrel. We found that there was marsh grass in it; that he had gotten that from a dealer in glassware, and that the dealer bought this from the infected area of New Jersey. It seems to me that that is a rather important matter. We certainly do not want to get our State infected with anthrax. We do not want to have to go the Legislature and ask for an appropriation of money to stop it. We do think that something should be done so that the restriction of this method of disseminating the disease, quite probably disseminating itself by marsh-grass packing, should be stopped.

Dr. Rayen: During the season of 1895 we had an outbreak of anthrax at McKenzie, Tennessee, about ninety miles northeast of Memphis. The outbreak occurred among the town cows and was confined almost exclusively to the corporate limits. There was located in the town a pond that had been made by an embankment of the railroad, that had in some way become infected, and we never could trace the origin of it. We do not know how it came to that inland section, so far away from any other outbreaks, but altogether there were at least sixty animals of all descriptions that died from the disease.

Dr. Clement: Three years ago the disease broke out in Delaware, an infection from New Jersey by the shipping of marsh grass. On this farm where the outbreak first occurred, before there was any State supervision at all, the animals which died were buried some five or six feet under ground. As soon as the importance of the matter was discovered this pasture was put in quarantine. There had been no animals upon that pasture for three years until about three months ago. The animals that were put upon that pasture two or three months ago were to all appearances healthy. They had been there but a few weeks before a large number of them died of anthrax. That shows how tenacious of life the organism is, and how great the importance is that there should be something done in this matter.

I would state another instance here. The cows that died upon this farm in Maryland, the first one that died, the owner, not knowing what the trouble was, gave a part of the carcass to a neighhor who kept fox-hounds. The meat was taken to his orchard and hung up in a tree. The hounds were given the meat to eat, and one of them died under circumstances which point to anthrax; the other had a carbuncle, and finally recovered. The ground around this tree was fenced off; some sheep were bought and put upon the farm, and one of them died.

Dr. Grange: Since such an eminent authority as Dr. Swandrick has intimated that anthrax does not prevail in this country, I think it is well for us to know that any information to the contrary shall be made.

It happened last winter that I had the privilege of visiting the bacteriological laboratory of the city of Toronto, and there I made the acquaintance of the provincial bacteriologist. I had been informed that anthrax did not prevail in the Northern States and the province of Ontario. I was informed by this gentleman that at the town of Acton, a small place about forty miles west of Toronto, they had an outbreak among their cattle which caused the death of them very suddenly. The disease caused people to inquire of the authorities of Toronto as to the cause of it. The bacteriologist was sent out to investigate, and after examining some of the blood of the cattle he determined that it was anthrax, but for some time he was at a loss to know where it came from. On inquiry, however, he found that above the flats, where this outbreak occurred, was situated a tannery where they tanned all kinds of hides. On visiting the owner of this tannery he learned from him that the price of hides had become so high in the province that he sought elsewhere for them and that he had imported a lot from South America, and they were tanned there. It was noticed shortly after that these cattle were infected with the disease. The pasture-lands were low and were inundated, after which these cattle were placed upon the bottoms, and they soon began to die with the complaint, which turned out to be anthrax. If this is true, it illustrates what Dr. Clement said in regard to the life of this disease, it having gone through the tanning process; and I think this is a matter which should be looked into thoroughly, and some remedy applied if possible for its restriction.

Dr. Cary: I have listened to the paper of Dr. Dalrymple illustrating the work in the South, and I wish to say this in regard to anthrax: We have limited outbreaks nearly every spring and summer, but have not used the Pasteur vaccine at all. I would like to ask whether Dr. Clement or the people of New Jersey or Delaware use it.

Dr. Clement: We have had all the remaining animals upon this farm vaccinated and all the animals upon the neighbor's farm, but the fact remains that his stable is affected. We have proven that by putting healthy sheep in where the diseased animals have been, they died. Now, we have protected the rest of this man's animals by vaccinating them, but we cannot protect him from any he buys in the future. And when his neighbors visit him they must know that they will not be allowed to put their horses in his stable to feed. We have vaccinated all of his cattle, horses, and mules, and, contrary to the reports that we had heard before, we had no trouble with the horses and mules, and no trouble of any kind.

Dr. Hawkins: I understand they have had a slight outbreak in the town of Guelph, in Ontario. As Dr. Grange will no doubt remember, there has been more or less anthrax in that vicinity for a number of years back. I remember when I first commenced to practise of hearing of anthrax at that time. I understand that this spring some time—in the month of May, I think—they had some few cases, and there was one of our members of the profession called to treat one or two of them, and unfortunately for him he met with his death through one of these cases. He was very fond of fishing, and had been out trout fishing shortly before, and had run the point of the hook in his finger. A few days after he made the post-mortem on one of those animals that had died; he contracted anthrax and died, I think, within three days from infection.

Dr. Miller: My practice lies far North, being from Vermont, and we have anthrax there in most every section to some extent. A year ago the past autumn we had an outbreak of anthrax within the limits of the city (Burlington), and we used Pasteur's vaccine. We had in a herd of over 100 an outbreak of such severity that there were thirteen deaths within eight days. Most of these were in good health at night, but found dead in the morning. We made the vaccinations with the result that after the first we lost one animal, a two-year-old. After that there was no loss on the place. After the first three died they were skinned in the yards; the skins were hauled around the yard, and when we spoke about cleaning up the place the man said this animal was killed here, another was bled there, and another was skinned there, and the skins are gone, and the barn stands there now. I think the vaccine in that case did all that could be expected of it. We had another outbreak, and had the same results with the Pasteur vaccine that we had in Burlington. In such cases the buildings are infected and will spread the disease to animals brought in contact with them.

The bottom lands around Burlington are overflown every spring and fall, and just above there are several factories—two woollen mills and some others—and it is the impression that it comes from there. We find cases from twenty-five years back that I can trace, and we have in some instances a case where a man lost his life.

Dr. Thompson: We have a few outbreaks of anthrax in our country and at places very far apart, and sometimes in uninhabited regions, where large herds of cattle have run for the first time. You were speaking of the length of time this germ may remain in the ground. We believe these outbreaks were caused by the buffalo roaming over those plains not very many years ago.

The old hunters there tell us that at certain times of the year a disease would break out and a great many buffaloes would die, and as far as they could give the symptoms they resembled anthrax; and sometimes when they found an animal that had just died they would skin it. Then at times men would die—their hands and arms would swell, and the disease would advance, and the hunters would come to their death in that way. We have had a few outbreaks of anthrax among our domestic cattle. We find that in a large herd—three or four hundred cattle in the herd—I do not remember where there have been more than nine animals died; in the smaller herds perhaps not over three or four. We have had the blood examined and found that it was anthrax; but the disease seems to stop right there, and in many cases for a number of years we have not had a recurrence, but we invariably had the animal burned and destroyed. If we can find that any animals have died in that way we have the owner burn them.

Dr. Miller: Dr. Clement mentions the death of a dog with symptoms of anthrax after eating anthracoid flesh. It is generally supposed by English authorities that dogs are immune. I would like to know whether dogs are susceptible.

Dr. Bishop: There has been anthrax in my section, and there have been as high as seventeen and eighteen head died, and the flesh has been fed to dogs; the dogs have not died. Others have been bled in the mouth and fed it, and they have died.

Dr. Dalrymple: Dogs have died in this (Louisiana) outbreak, and chickens also. They had been fed from the meat of those animals.

Dr. Rayen: In Tennessee, in 1895, dogs died to some extent in the same outbreak; they had eaten of the carcasses of the animals that died of anthrax.

Dr. C. P. Lyman: A number of years ago Professor Axe reported an outbreak of this sort which he met with in England, during which outbreak the dogs which had eaten the meat of the dead animals became diseased themselves and died from it.

Dr. Thompson: If we are not very careful in our country the Indians will eat these animals that die. They do not care what the cause of death was, whether they died a natural death or from some other cause. I think the Indians are immune to all kinds of disease.

Dr. Dalrymple: I should like to say that in the summer of two years ago the department of agriculture of the State of Georgia asked me to make an investigation regarding the nature of an outbreak of disease: On examination I found it was anthrax. We tried some experiments, giving some animals properly cooked food. All those animals affected were fed on this food without cooking. Some other cows in the city that were fed this food died from it, and even those on the place that were fed this food uncooked, showing conclusively that the food was the vehicle. About 250 animals —mules and horses—were treated with vaccine, and after the first inoculation not more than 3 per cent. were affected with the disease, and not 50 per cent. of that number died. After the second inoculation a few cases occurred, with no deaths, while the non-vaccinated animals were dying all around on the farms.

SERUM-THERAPY IN HOG-CHOLERA.

BY A. T. PETERS, V.S.

MR. PRESIDENT AND FELLOW-MEMBERS OF THE ASSOCIATION: The subject which I have chosen for a paper is one which is of great interest to the Western States as well as to the Eastern ones; at least those Eastern ones which raise a great many hogs. On account of the great loss every year, the Nebraska Experiment Station has taken up and is compelled to investigate hog-cholera.

Serum-therapy, as we all know, has been used in various diseases, such as tuberculosis, rabies, and pneumonia, though obtained with some difficulty from immune rabbits; consequently this treatment has not been used to a great extent, but the subject is promising enough to observe further investigation. It has also been used in enteric fever. Good results have not been obtained in practice, though laboratory results have been very promising.

In typhoid fever it was used by Dr. Legrain during an epidemic in Algiers with good results. Cholera in man is different from that in animals, but still Dr. Behring announces that he has a curative serum.

Syphilis has also been treated by this method, and it is claimed in some of the literature by various authors that good results were obtained.

The streptococcus infection. The serum from animals made immune by vaccination has been employed with good effect in erysipelas and puerperal fever.

In cancer no satisfactory results have been obtained thus far.

Tetanus. This affection is very hard to cure in animals, and no conclusive results have been obtained in man. The serum acts as a prophylactic agent against tetanus.

In diphtheria the serum treatment has scored its most remarkable triumph. The few accidents which have occurred may be overlooked when we consider the wonderful success that has been attained.

Serum has also proven successful in snake-bites.

From the foregoing remarks it can readily be seen that serum-therapy has a brilliant future before it. Dr. Lorenz, of Darmstadt, Germany, has successfully made rabbits immune against swine erysipelas. In his article in the *Deutsche Zeitschrift für Thiermedicin*, Band xx., he gives his results, which are very satisfactory. It will be noticed in his article that he has protected pigs against swine erysipelas by subcutaneous injections of blood-serum from animals previously rendered immune against this disease. In the first experiments he obtained the blood-serum from previously protected guinea-pigs and rabbits; but it will very readily be seen that these animals were too small and did not yield enough blood to make it practical, and therefore he purchased pigs nearly ready to slaughter, and these he inoculated with protective material previously obtained from the blood of rabbits. In nearly all cases the animals exhibited no reaction and continued to thrive under the treatment. When they became protected he killed the animals, and their blood-serum was used to protect other pigs. The blood-serum used was injected subcutaneously behind the ear or between the thighs. It is asserted that this method has already been used on a large scale, which is shown by the table which accompanies Dr. Lorenz's article, and that it is devoid of danger and is successful in conferring protection. Dr. Lorenz used blood-serum diluted with distilled water—that is, a pig weighing about 150 pounds would receive about 5 grammes of blood-serum diluted with 5 grammes of sterilized water, this being one dose.

Having illustrated what has been accomplished in the serum-therapy, I will now give a preliminary report of what has been done at the Experiment Station of Nebraska during the last year.

Requests were made from numerous parts of the State urging the Chancellor and the Board of Regents to have investigations made in swine diseases. Appropriations for such investigations were accordingly made, and with the consent of the Chancellor and Board of Regents I commenced work to see what could be done with blood-serum from animals made immune against hog-cholera.

Knowing from the experiments of Dr. Lorenz that the smaller animals yielded but very little blood, and that it was not practical to use them, we therefore chose a larger animal—and selected the horse. Four horses were purchased, all of which had undergone the mallein-test for glanders. After it was ascertained that these animals were healthy, they were given 5 c.c. of a virulent culture of hog-cholera. (I will say here that at the seat of inoculation the necessary antiseptic precautions were used, such as shaving away the hair, and thoroughly disinfecting the surface with corrosive sublimate.) The syringe and all instruments used had previously been sterilized. The temperature of the animal was taken every two hours after the injection of the virulent culture, and fever charts kept of the same. The first 5 c.c. made the animal very dumpish in a very few hours, and the temperature would invariably rise from two to three degrees after the injection. They would not be entirely off their feed after the injection, but showed decided symptoms of not relishing the first feed. These symptoms lasted but a few hours, when signs of recuperation were noticeable. No antiseptics were used with the first injections, such as are prescribed with the Behring method for diphtheria, but all the succeeding cultures were injected with a few drops of carbolic acid. This was done to arrest suppuration and to avoid the large abscesses that formed within two days after the injection of the culture. The next injection was made five days later, and consisted of another 5 c.c. of a virulent culture. Again in five days another but larger dose was administered—10 c.c. We increased the dose 5 c.c. at a time, every week, until the animal was immune. The largest dose any of the animals received was 200 c.c. Two animals showed alarming symptoms after the first dose of 200 c.c., but soon rallied. After the animals ceased to react to the cultures they were bled and a small quantity of blood taken from them and tested on rabbits. This was done the same as is done in the method for testing diphtheria-serum. When it was found that the animal was sufficiently immune a larger quantity of blood was taken from the vein and put into the ice-chest to stand for forty-eight hours. The serum was then siphoned off into a large bottle, from which it was run through a filter—the filter described in the *Johns Hopkins Hospital Bulletin*, No. 51, which contains an article describing a quick method of filtering blood-serum. The bottle that receives the filtered serum contains a rather large piece of camphor, which, with the bottle, is previously sterilized. This bottle with the contents is then set away in a cool, dark place, and can be used at any time. The experiments at the laboratory have shown that it takes from 8 to 10 c.c. of undiluted serum to make a hog of about 150 pounds immune. We have never had any mishaps in the inoculations made in the various herds throughout the State. The herds which have not proven to be perfectly immune—as you will notice later—were those on which we tested the dose, not knowing positively the amount of serum necessary to make a large pig immune.

The question is, Which gives the power of immunity? Most of the literature of to-day seems to give credit to the leucocytes for their germicidal power, and others seem to credit it to a toxin in the blood. We are enlightened more and more every day with numerous experiments, but the experiments that have been conducted in the serum up to date, and mostly that of diphtheria serum (antitoxin) unquestionably show that it is the white blood-corpuscles which digest the bacteria. The main facts connected with immunity have been known from time immemorial. The horse does not contract the bovine diseases called contagious pleuro-pneumonia. The ox has a like freedom from glanders. They are examples of what is termed inherited or natural immunity. Before endeavoring to discover what happens when the germs of an infectious disease find their way into the body of an animal that has acquired immunity by a previous attack, it is well to have clear notions regarding the way in which the germs of infectious disease produce their deleterious effects. The pathogenic bacteria are vegetable parasites, and like many of the more highly organized members of the same kingdom, they elaborate substances that are poisonous to the animal body. As a familiar instance, Cadeac cites the experiment of putting yeast in a solution of sugar, which mixture will produce carbonic acid and alcohol. After a certain time the fermentation will stop. If we add sugar to the liquid, yeast will recommence growing, but the fermentation will soon again stop, and will not begin afresh even if we add more sugar. If, on the contrary, we add water, the fermentation will commence again, and will also do so if by heating the liquid we drive off the alcohol which has been formed. In the first case the effect of the water was not to add to the materials necessary for the nutrition of the ferment, but to dilute the matters formed by the yeast, of which alcohol was the principal. In the second, the heat expelled the alcohol or considerably diminished it, and the fermentation commenced anew. Here the alcohol has a poisonous or a paralyzing effect on the yeast which produced it. The theory may explain the fact that certain diseases, like contagious pleuro-pneumonia and pink-eye, run a definite course, at the end of which, if the animal has survived the severity of the symptoms, the disease will disappear. In this class of diseases the acquired immunity will naturally be comparatively short-lived. In affording an explanation for the action of the system in resisting the attack of diseased germs, pathologists as a rule take one of two sides, namely, that of those who hold the theory that protection is obtained by serum of the blood; or that of those who, with Metschnikoff, award the credit to the leucocytes and cells of the part. Perhaps the safer plan would be to regard both theories as partly correct. Newtall and Buschner and others have shown that serum of the blood without the presence of leucocytes has a well-marked germicidal action, which, according to Funforder, is in accordance with the immunity of the particular animal. Now Funforder has shown that the germicidal power of the serum decreased with the temperature, and that it is strengthened by the addition of a drug which, like carbonate of potash or carbonate of soda, increases the alkali of the blood. We know that in inflammation the leucocytes and the cells of the injured part absorb and digest dead and effete matter. Now acquired immunity is never absolute. Thus, although one attack of smallpox or one of strangles almost always confers immunity from a second attack in respectively man or horse, exceptions are now and then met with. This immunity lasts a long time in some diseases; only a short period in others, and may have even a negative influence. In malarial fever, for instance, one attack increases the susceptibility to a second attack. In those diseases in which one attack has a well-marked power of conferring subsequent immunity, protection, according to Metschnikoff, is acquired by the previous training and devouring of microbes which the leucocytes have undergone. If we inoculate the virus of anthrax, for example, under the skin of an ordinary rabbit and of a rabbit which has been protected by vaccination, behold what we may observe at the respective seats of inoculation. In the ordinary rabbit the microbes multiply rapidly, the swollen part is full of watery fluid, and is poor in cells. Little by little the swelling extends, the neighboring ganglions enlarge, and the infection becomes generalized. In the protected rabbit, on the other hand, the bacilli multiply at first, but soon the leucocytes arrive in such great numbers that the microbes are taken and killed. The fluid in the swelling instead of being clear becomes thick. Cells are abundant in it, and the bacilli disappear. The disease does not extend and it becomes cured.

The experiments that have been conducted in the laboratory were to make pigs immune and to send them out to herds that were infected. This was done generally with the material that was sent in from a herd that made request for material. I will say that no material was granted to any herd before it was positively shown by cultures and by inoculations that the hog-cholera germ was present.

We tested the hogs at the laboratory, which experiment is still under way, with cultures and blood of animals that had succumbed to the disease. The animals would be tagged. One would be tagged "protected" and the other would be tagged "unprotected," and invariably within eight days the one that would not be protected would die, and on post-mortem the hog-cholera germ would be found. The dose generally received would be 1½ c.c. of the blood of an animal that had died, and that would be given to an unprotected animal. The same amount would be given to a protected animal with 10 c.c. of serum. Thus far at the laboratory we have not noticed any change in the animals, only we would notice on both animals an abscess forming at the seat of inoculation, which would heal up after ten or twelve days.

Experiments are now under way, feeding animals with dead material (viscera) of animals that succumbed to the disease. Thus far the unprotected animals contract the disease; and the others, that are tagged "protected" and run in the same pen with the unprotected animals, seem to fare well and show no symptoms of the disease.

Following is a statement of the various herds treated up to date:

The first antitoxin serum was used January 28, 1896, on Mr. S.'s herd of fourteen animals, two of which were sick. One of these succumbed.

The next herd treated was Mr. G.'s, on April 20th. This gentleman had ten sick ones and only one well one, and I may say eight of the ten that were sick were very sick—that is, they were very doubtful ones. Mr. G. lost five out of the ten sick, the well one not taking the disease at all.

On May 21st Mr. G. had suckling pigs inoculated, as he reported a loss of three head. He had lost no more after the inoculation. There were four head inoculated.

Mr. B. had sixty-three head inoculated on May 4th and 5th. Of the sixty-three head there were twenty-one sick ones, nine very sick, and four very doubtful of recovery. In that lot there were also fourteen piggy sows. Mr. B. reports a loss of only six—that is, the four doubtful ones died the following day, and two others.

The next herd was Mr. N.'s. Mr. N.'s herd was inoculated on May 18th. It consisted of eighteen head of pigs, seven of which were pronounced sick; two of these very sick. Mr. N. reports a loss of only two of the very sick ones.

Mr. W. reports his herd was inoculated on June 2d—103 head. Thirty-four of these were large hogs, seven of them with pigs, and three of these had shown signs of disease. There were sixty-nine small ones; almost all of these sick at the time of treatment. There is so far no report of this herd.

Mr. O. L. S. had his herd treated on June 6th. It consisted of thirty-nine head: fourteen old ones, twenty-two suckling pigs, and three small shotes. At this writing we have no positive data as regards his experiment.

On July 25th Mr. C. had his herd inoculated—twenty-five pigs. These were in very poor condition at the time of treatment. They were so weak that the majority of them, say three-fourths, could not walk across the field. There is a report at this date of a loss of eleven of these animals.

On August 5th Mr. W. B. had seven head treated which were very doubtful cases, as they had not eaten anything for over a week. At this date there are three of those alive.

On August 5th Mr. D. H. had forty-two head treated. Fourteen of these were small pigs, twenty-four shotes, and four old sows; two tagged sick. At this writing we have a report of a loss of none.

Mr. John J. had his herd of fifty-seven head treated the same day. There were thirty-eight small pigs, seven old sows, and twelve shotes. Of these there were two of the small pigs sick, three large sows sick, and five small shotes sick. He has reported a loss of eight, but only of the ones that were tagged sick.

Mr. Z. S. B., on August 6th, had his herd of thirty-six head of shotes treated. He had two animals on his place that were sick for a week before treatment. At this writing there is no loss reported.

Mr. V. W. J. had his herd of twenty-three head treated as being a neighbor of an infected herd, and at this writing has reported no loss.

Messrs. J. & G. H. had their herd treated August 6th, of forty-three head, who at this date also report no loss.

August 9th Mr. I. P. had his herd of forty-six head treated, and reports that he has not lost any of the ones tagged treated, but reports losses of some that were left untreated.

August 11th O. M. E. had his herd of twenty-one head treated, on account of having his neighbors infected. At this writing reports a loss of none.

Mr. F. P. had one hog treated which was sick at the time of treatment, but does not report a loss at this writing.

Mr. J. E. M. was using a patent medicine for five weeks prior to his hogs taking the disease. He wanted eight animals treated on which he had not used this patent medicine, and selected the sickest animals in the herd. They were tagged with our tag as being treated, and five of the eight at this writing have died; but there were thirty-five that were left untreated with patent medicine, and out of that number there are only eight alive.

Mr. A. E. P. had his herd treated, numbering twenty-eight, on account of his neighbor's hogs being infected, and reports at this date no loss.

Mr. M. K. had his herd of fifty-seven head treated. He reports a loss of eight, of which six animals were tagged sick.

Mr. M. S. had his herd of twenty-seven head treated on account of his neighbor's being infected, and at this writing reports no loss.

On August 20th Mr. C. A. Morrill, of Stromsburg, had twelve head in three different herds treated, all of which were very sick and doubtful of recovery. At present writing no report.

On August 22d Mr. C. H. Walker received 100 doses, which are also not accounted for.

DISCUSSION.

Dr. Salmon: I am sure we are all glad to listen to the paper of Dr. Peters and see that he has started out in this experiment in this branch, which is almost the last one to afford a harvest of thought in the way of securing information for curing sick animals of cholera or of granting immunity. There are some great difficulties to overcome in the management of hog-cholera in this way, and one of the principal ones is the fact that it is very difficult to distinguish between hog-cholera and swine plague, both of which are very common and both of which often affect an animal at the same time, so that the only way that I can see in which the two can be grappled with is to make the material, like the horses that are treated, immune of swine plague and hog-cholera, so that if the animal is affected by one or the other, or both, get the serum from the animal which we know has it, and then we might expect some good results.

Hog-cholera is difficult to manage for this reason, that the experiments that have been made in the past have shown that it is difficult to grant any immunity or any considerable degree of immunity by any sort of treatment; that is, it is a very easy matter to inoculate hogs with strong enough virus to produce immunity but not in doses to kill, and you would suppose that if there is any such thing as giving immunity that that would be the best way to do it, and yet the experiments which have been made have shown beyond any reasonable contest that the inoculation of hogs as preventing this disease is a failure; that by any ordinary inoculation we cannot grant sufficient immunity to prevent the spread of the disease. There is only one way in which we have succeeded in this work by anything like immunity, and that was by vaccine inoculation, and in that way a degree of immunity would be produced which would grant a certain amount of protection.

As yet I believe that no one has been able to find anything that would make them immune so that it would last as long as the germs. A temporary immunity is produced with diphtheria and with other diseases by injections of serum, but not a very lasting one. The use of serum has rather been as a curative than a preventive, but still to a certain extent for prevention.

The comparatively small value of the animal, the short life of it, the expense of treatment, and the rather short period of time that the immunity produced by serum could be expected to last make it impracticable at the present time. If the disease breaks out in a district it generally keeps up for a considerable length of time, and very often starts in the spring or midsummer and lasts to midwinter—a considerable longer period than we could expect immunity to last in this way—so that to grant enough immunity to save the animal from the disease, the treatment and the time of the operator to give the injection, the cost of the serum, etc., are rather discouraging at first. But of course this is experimental work, and may be improved materially in that regard; and it is very fortunate that Dr. Peters has taken up the subject. He has shown that a serum can be produced with the horse that can be used to produce immunity to a certain degree, at least, and that there is a prospect of getting some practical results from it.

I may say, although it is rather premature, that we have been working in this line in Washington, and we have made some tests with horses, but not sufficiently to give much of an opinion upon it. But my idea was that the serum treatment would be more valuable as a treatment for sick hogs than to produce immunity; it may be that temporary immunity will be valuable, but we must all remember that it requires a great many experiments with this disease before we can reach any conclusion. You can treat hog-cholera with drugs of various kinds and get the most astonishing results.

You have herds where you can apparently cure almost all of the cases of the disease that occurred, and then you strike other herds where you give the same medicines and get practically no results from it; and that is the way also when you undertake to treat the disease by inoculation. Inoculation, as we all remember, was tried on a considerable scale in the western part of the country, and at one time it was thought that it was giving valuable results; but on a large scale it was not. I think we should give Dr. Peters all the encouragement we can, and test this on a large scale and see exactly what he can get out of it. The Bureau will continue its experiments in the same line, and I hope, by comparing the work, to be able to get it introduced in other stations and have them take up the work so we can get a sufficient number of experiments from which we can get some good results.

I will say that it is much easier to protect against swine plague than hog-cholera. It is easier to grant immunity and easier to cure. In order to have your experiments reliable it is necessary to make a complete diagnosis in order to get that. Dr. Peters did not tell us how he determined the fact that it was hog-cholera—I presume by investigations; but unless he is very much more expert than the bacteriologists—than those I relied upon in the government experiments—I must say that I do not see how he could reach positive conclusions, because in the outbreaks in the West sometimes we cannot find the hog-cholera germs at all, and in other cases we find swine-plague germs in the lesions of hog-cholera, and sometimes find both germs in the same animal, so that the results of experiments are more or less doubtful under these conditions, which are hard to guard against, and from which it is hard to get good and satisfactory results, even by the bacteriologist's exertions.

Dr. Kilborne: I have but one point to offer, and that is this: As I understood the essayist, in all these cases the whole herd was treated.

Dr. Peters: On account of the lack of serum and our inability to get it, we divided the herd and only treated one-half of it.

Dr. Kilborne: The point I wish to bring up is: in these cases of hog-cholera the first deaths will occur more or less suddenly; they will be followed by scattering deaths, and then the rest of the herd will make more or less rapid recovery. In only a few cases does the disease carry off the whole herd. But in applying any treatment to a herd where the disease has already broken out it would be impossible to tell whether the disease had run its course and that all the deaths had occurred that naturally would where the whole herd is treated. I know of many cases where it has been tried with patent medicines on one or two or a few hogs, and with apparent success—I do not mean patent medicines, but the so-called specific—and the proprietors of the specific have jumped at conclusions and thought they had a specific, and have put it on the market as such. When such a remedy has been tested on healthy animals, or on herds that were divided, and by testing it upon one-half of the herd and leaving the other half without it, it is found that the specific is a positive damage.

Now, in the case of the serum, I sincerely hope that its use will prove successful, but at the same time I should want to get some results from it to show more conclusively that it had a positive curative or preventive effect. In treating with serum, if the herd was equally divided as far as possible, if an outbreak has occurred, by dividing the healthy—separating the healthy and the diseased into two lots equally, and treating one and leaving the other—if there is a marked difference between the treated and untreated, we can give the serum credit for it then. In another case healthy herds can be taken, as I believe several herds were taken; if one-half of the herd were treated and the other half untreated, then in case the disease broke out in the herd we would have some data from which to judge of the efficiency of the serum treatment. I know in a large number of experiments undertaken under my direction while at Washington, and from observations in the field, we found that we could place very little reliance on any results to be judged from where the whole herd was treated alike. In so many cases the deaths would cease where there was no treatment applied whatever. In other outbreaks deaths would continue; so that I would suggest that in order to show the efficiency of the serum we ought to have tests on divided herds—herds in which one-half of the animals are treated and the other half left—then the whole experiment will exhibit from the results what the serum in fact will do.

Dr. Gill: I know nothing about hog-cholera, so far as the application of serum is concerned. So far as toxins are concerned we are getting it very strong—three times as strong as we were before; and so far as the application of the serum is concerned, I think its use is more available as a preventive than as a curative, and I will give you an illustration. If a case of diphtheria is found in some orphan asylum or several cases, say the inmates number four or five hundred, the affected children are injected as well as the inmates, the inmates being injected with a milder serum as a preventive, with a view to immunize them. And I notice that serum has to be given while they have sufficient vitality left. If a person or an animal is given serum after, say, the vitality has been considerably lowered, you get no good results. We have had several cases where we used tetanus antitoxin in horses, and if we injected the serum when we noticed the very first symptom we could effect a cure; but if it had advanced considerably, the effect of our serum was that we got no good results. I think you can use the serum more as a prophylactic than as a curative. If you are called upon to examine or treat a herd of hogs affected with hog-cholera, the disease has made such a progress that the vitality of the animal is lowered and the action of the antitoxin will be of no avail; that has been my experience; you must use the serum early to expect any good results; but I think as a prophylactic it is an excellent agent.

Dr. Peters: Replying to Dr. Salmon's remarks, I will say that I tried to make as accurate an examination of the hog-cholera germs as possible. We recognize the fact that there are two germs. But in the majority of cases in which it is proven to be swine plague the most virulent is found to be in the pulmonary form; but as I stated in my paper, we never pronounced a case to be hog-cholera unless we made the inoculation, the culture, and the microscopical test; then we were satisfied, as far as my knowledge was concerned, that it was a case of cholera. We are now trying to get our serum distributed over the whole State.

Dr. Stalker: The comparatively small value of the pig, its short life, the expense of doing the work, and all that, will, I think, conspire against its being a successful prophylactic for cholera. No matter how efficacious the serum may be, I have very serious doubts about its being successful with the present conditions. I am quite inclined to the belief that the restrictive measures—sanitary and police regulations, local restrictions that will interfere with and prevent the spread of the disease—have the greatest degree of value in them of anything yet presented for the benefit of the taxpayers. I do not mean to say anything to discourage the valuable experiments of Dr. Peters, and I am very glad to know that he is so interested in this important work, but I simply want to express my doubt that it will ever become successful.

A STUDY OF CATHARTICS.

BY M. H. REYNOLDS, M.D., V.M.

THESE experiments as originally planned were on a very small scale and very simple; but the study became interesting, and the result has been sixty experiments with eserine and thirty-two with barium--others with aloes and with aloes and calomel. This has naturally resulted in the accumulation of a mass of statistics and observation notes, of which only summaries and conclusions can be given in a paper of this length. It must be remembered that a majority of these experiments were upon horses not sick, and are to be regarded as experiments in physiological effects rather than actual therapeutics.

The writer has thought best not to discuss the materia medica or theoretical therapeutics of the medicines used, but rather the results, comparisons, and ranges of usefulness.

DATA TAKEN.

PERIOD A.	PERIOD B.
Period A covers twenty-four hours before the time of administration.	Period B covers the twenty-four hours immediately after the time of administration.
Data taken: Pulse, temperature, and respiration at 12 M., 5 P.M., 10 P.M., 7 A.M. and 12 M. the second day.	Data taken: Pulse, temperature, and respiration at 12 M., 1 P.M., 2 P.M., 3 P.M., 5 P.M., 10 P.M., 7 A.M., and finally 12 M. at the close of period B on the third day.
Bowel discharges: Number from 12 M. to 5 P.M.; 5 P.M. to 10 P.M.; 10 P.M. to 7 A.M.; and from 7 A.M. to 12 M. the second day; total number for the twenty-four hours and total weight. Dose given at 12 M.	Bowel-discharge record taken as follows: When the first discharge appeared which showed the effect of the dose; number of discharges from 12 M. to 1 P.M.; from 1 P.M. to 2 P.M.; from 2 P.M. to 3 P.M.; from 3 P.M. to 5 P.M.; from 5 P.M. to 10 P.M.; from 10 P.M. to 7 A.M.; and from 7 A.M. to 12 M. at the close of period B. Total number during the twenty-four hours of period B and the total weight of feces discharged.

In some cases a further period of twenty-four hours was added to the experiment and named period C. The purpose of this was to compare various medicines and doses in their effects as to condition of the feces, number, and weight of discharges during this period of twenty-four hours, and compare these with the period A; we then had an accurate record of the bowel discharges not only during this period A, but also during two successive periods of twenty-four hours each after administration of the cathartic.

In this way I could get comparisons of the pulse, temperature, respiration, and bowel discharge records, taken at certain hours and for certain periods during the twenty-four hours preceding, with similar data taken during the twenty-four or forty-eight hours, as the case might be, succeeding the administration of the medicine and incidentally have the opportunity to study the subsequent effect of the medicine when the active catharsis had ceased.

It must be remembered that the horses used for these experiments were mainly not sick horses. Some were colics, impactions, etc. Those were purely experimental, however, which I used for comparisons and studies of physiological effects, for it is impossible to get two or more sick horses in conditions nearly enough alike to make the comparisons valuable. The hospital cases are all specified as hospital cases or H. C.

The writer feared that since these experimental horses were getting but moderate exercise in the yards, and, with few exceptions, no active work, this might lessen the value of the normal averages, which, for the bowel-discharge records, might be too low for both number and weight; and, again, their lack of active work might render them less susceptible to cathartics than working horses. To settle this point records were taken of thirteen work horses on the State farm.

TABLE A.—NORMAL BOWEL RECORD.

	Name. (Working horses.)	Age	Wt.	Condition.	Kind of work.	Feed.				Sex	Color.	Bowel discharges.					
						Hay.		Grain.									
						Kind.	Amt.	Kind.	Amt. p.day			7 A.M. to 12 M.	12 M. to 5 P.M.	5 P.M. to 10 P.M.	10 P.M. to 7 A.M.	Total number.	Total weight.
1	Baby,	6	1350	Good	Farm	Poor	Ad lib.	Oats	21	F.	Black	1	2	2	3	8	33
2	Daisy,	6	1350	"	"	"	"	"	21	F.	"	2	2	1	3	8	42
3	Fan,	6	1300	"	"	"	"	"	21	F.	Gray	1	1	1	1	4	22.5
4	Ned,	10	1200	"	"	"	"	Gr. fod.	18	M.	Bay	1	1	2	2	6	27.5
5	Maud,	7	1275	"	Heavy carriage	"	"	Oats	15	F.	Sor.	1	2	2	3	8	37
6	Dandy,	10	1200	"	Farm	"	"	"	18	M.	Black	2	1	2	2	7	33.5
7	Chub,	10	1200	"	"	"	"	"	18	M.	"	0	1	1	1	3	28
8	Frank,	6	1200	"	"	"	"	"	20	M.	Bay	1	1	1	2	5	25
9	Pat,	6	1200	"	"	"	"	"	20	M.	"	2	1	2	2	7	32
10	Harry,	20	900	"	Driving	Good	"	"	16	M.	Sor.	1	2	3	2	8	30
11	Josie,	8	900	"	"	"	"	"	15	F.	Gray	2	2	3	2	9	35
12	Brownie,	6	850	"	"	"	"	"	12	M.	Bay	3	2	3	4	12	33
13	Kit,	7	1200	"	Farm	Poor	"	"	18	F.	Gray	4	2	3	3	12	54
												Averages,				7.4	32.9

A comparison of their bowel records with my experimental horses in the hospital shows an average number of discharges per twenty-four hours of 7.4 and an average weight of 32.9 pounds.

TABLE B.—NORMAL AVERAGES.

No.	Name.	No. taken.	Bowel discharges.		Temp.	Pulse.	Resp.	Number of times temp., pulse, and resp. taken.
			No.	Weight.				
1	Harry	3	8.33	30.0	99.76°	32.9	15.4	3
2	Jim	7	9.8	28.1	96.9	34.4	17.0	3
3	Dick	16	8.6	37.4	100.1	41.0	12.3	57
4	Lady	6	10.5	23.9	100.3	40.0	12.6	18
5	Josie	2	9.5	34.7	......	......	......	...
6	Jim, 2d	6	16.5	40.5	99.0	40.0	9.5	24
7	Dolly	1	22.0	35.0	99.8	42.0	16.0	3
8	Brownie	2	12.5	33.0	100.6	45.0	15.0	8
9	Nick	4	8.7	26.9	100.5	38.5	12.8	7
10	C. C.	10	9.1	30.2	100.8	43.2	14.0	15
11	Kenwood	6	8.0	30.5	100.1	39.2	16.0	12
12	Whitey	8	10.5	31.7	100.3	47.2	14.5	16
13	Prince	1	10.0	44.5	100.4	34.0	20.0	4
14	Dandy	1	11.0	40.0	101.0	48.0	16.0	4
	Hospital horses' average	......	11.07	33.3				
15	Baby	1	8	33.0				
16	Daisy	1	8	42.0				
17	Fan	1	4	22.5				
18	Ned	1	6	27.5				
19	Maud	1	8	37.0				
20	Dandy, 2d	1	7	33.5				
21	Chub	1	3	23.0				
22	Frank	1	5	25.0				
23	Pat	1	7	22.0				
	Average of 23 horses	......	8.3	31.8	99.9	39.7	14.6	

The experimental horses in the hospital—fourteen in number—show an average of 11.07 bowel discharges in twenty-four hours and an average weight of 33.3. In each lot there were a few that varied far from the normal, but it will be observed that the averages agree closely. When the averages of both lots are taken the results show the average number of discharges to be 8.3 and the average weight 31.8.

With some horses the series would begin with the maximum doses, and the smaller doses be given in series later. With others the first dose would be the smallest planned, and then progressively larger ones be given, in order that the possible source of error—decreasing susceptibility—might be discovered and checked. This gives a chance to compare a given dose of eserine, *e.g.*, with another dose consisting of the same eserine plus a variety of doses of pilocarpine, then eserine compared with eserine and atropine; then doses of eserine with the best selected amount of pilocarpine compared with the same doses of eserine and pilocarpine plus atropine in the best selected amount, usually 0.05 grain; then this last dose is compared with another in which the eserine and pilocarpine are the same, but strychnine is substituted for the atropine. Each dose and the series comparisons duplicated with as many different horses as possible. The barium experiments give a chance to compare the most satisfactory eserine combinations with barium. Conclusions will be given later.

For the eserine experiments all doses are in grains on a standard of 900 pounds weight. The doses quoted in this paper are the doses a given horse would have received if he had weighed 900 pounds. This is done for the sake of speed and ease in comparing doses and results. As a matter of fact, the actual doses were in proportion to weight.

For all the barium experiments the doses were also given in proportion to live weight, but on a basis of 1000 pounds standard, and the doses are quoted as in grammes. I think that the majority of veterinarians are in the habit of estimating eserine doses in grains and the barium doses in grammes.

For the barium chloride 8 grammes were selected as the smallest dose per mouth, and 0.75 as the minimum dose per intravenous method. The per mouth series consisted of 8, 10, 12.5, 15, and in two cases 20 grammes. In some cases a dose would be given in bolus, then duplicated in solution to see if there was a material difference as to the method of administration. The series selected for the intravenous method was 0.75, 1. and 1.5 grammes in 10 per cent. solution. When the ideal dose proportion or balance of the medicines used had been decided, then this dose was to be given to cases in practice and records kept.

The Medicines. It frequently happens in the use of cathartics that the results are very unsatisfactory. It may be that results are wanting—a large dose is apparently without effect upon the bowel movements, or a small dose may act with unexpected and alarming severity. It may be that there is an extreme depression, painful peristaltic activity, severe muscular tremors, and so on, and the question becomes an interesting one why, in this particular case, the results were so very unsatisfactory. I shall try to answer some of these questions later.

TABLE C.—MEDICINAL DOSE.

Drug.	Pulse.	Respiration.	Temperature.	Arterial pressure.	Secretions.	Arterioles.	Vascular tone.	How eliminated.	Peristalsis.	Involuntary muscle-fibres.	Hollow organs.
Eserine,	—	x then —	o	— then x	* — x	...	...	Secretion.	x	x	(—)
Pilocarpine	† —	o	o	—	x	x	—	Secretion.	x	—	(—)
Atropine,	x	x then —	x	x	—	* (x)(—)	* — x	Secretion, especially urine.	* — x	* — x	
Strychnine,	x	x	o	x	x	(—)	x	Urine.	x	x	(—)
$BaCl_2$,	—	x	o	— then x	x	(—)	x	......	x	x	

o. Nil.
—. Lessens or depresses.
x. Increases or stimulates.
*. Depends on large or small dose.
(—). Contracts.
(x). Dilates or expands.
†. Authors differ.

It will be noticed that all these medicines increase secretions except atropine in large doses, and that even it has this effect in small doses, and the same remarks apply to their effects on peristalsis. All stimulate contractions of involuntary muscle-fibres except pilocarpine, which has something of a reverse effect. Atropine stimulates the involuntary fibres in small doses and the reverse in large doses. Upon the hollow organs in general, eserine, pilocarpine, and strychnine contract them.

Barium. Bartholow says of barium, in his *Materia Medica*, in speaking of the physiological effects of barium chloride on the human, that in full medicinal doses it causes irritation of the stomach with sense of heat or burning at the epigastrium. One case is reported where symptoms of poisoning came on in one week after the administration of ½ grain three times daily, the whole amount taken being 2½ grains. The symptoms were extreme exhaustion and nervousness. He thinks a peculiar idiosyncrasy must have existed in this case or so small an amount would not have produced such pronounced symptoms. . . . He says the usual symptoms in cases of poisoning are intense anguish, free salivation, great thirst, loss of voice, vomiting, purging, dilated pupils, frequent micturition, respiration slow and labored, and slow pulse, increasing weakness, and finally complete paralysis of the extremities. The chief post-mortem conditions are pronounced rigidity, bronchial effusion, and hyperæmia of the lungs, heart distended, with black blood, and brain engorged. In the stomach intense hyperæmia, sometimes perforation; 2½ grains have produced serious symptoms; 1 drachm has caused death in seventeen hours and 1 ounce in one hour.

Large doses suddenly injected into the jugular cause paralysis of both heart and lungs; death is caused rather by paralysis of the respiratory muscles than by cessation of the heart-action. Paralysis in the lower animals begins at the lower extremities.

Barium causes strong cardiac contractions, dilated pupils, energetic peristalsis of the bowels, even closure of the lumen of the intestine and of the bladder, and almost complete approximation of the peripheral vessel-walls.

Let us study for a moment the criticism of a cathartic effect. What are the unsatisfactory results that may follow the administration of a cathartic?

We may have a fatal poisoning; the result may be less serious, but there may be extreme pain; there may be severe depression, severe muscular tremors, or an agent may be uncertain and results difficult to estimate. There may be actual constipation; the effect may be *nil*, or extreme purging and a possible enteritis; there may be a persistent and objectionable after-period of constipation when the cathartic action has ceased. A common and very unsatisfactory result appears in those cases in which there is at first a very active effect apparently, but the discharges are small, little but watery fluid passes, and there is little movement of actual feces. It is very common that after the administration of a cathartic there appear quite a number of discharges—many more than would have appeared under normal conditions; but the total weight of feces passed during the twenty-four-hour period may be very much less than would have occurred without the cathartic, and so whereas we wish to unload the bowels, as a matter of fact we may have accomplished just the reverse.

Ideal Catharsis. What constitutes an ideal cathartic effect? The answer to this must depend to a large extent on the object to be accomplished; but in general there should result the movement, during twenty-four hours, of from three to ten or more pounds of feces, more than would have occurred without the medicine during the same period; there should be a gain in number for this period of perhaps five; the pain resulting from the dose must be *nil* or moderate; there should follow slight or no after-constipation; there should be no extreme depression during the active catharsis, and I dislike very much the severe muscular tremors that sometimes follow the use of certain drugs. The drug should be such that there is no danger of fatal or even alarming results in horses that we do not know as to their susceptibility.

Unsatisfactory results. Reasons. In studying unfortunate and unsatisfactory results of eserine we must not forget that there are two alkaloids in the calabar bean which are diametrically opposed in physiological effects, and that a commercial sample of eserine is liable to be contaminated with calabarine. Again, eserine in the presence of acids takes up water and changes to eseridine, which has at the best but one-sixth the activity of eserine. These alkaloids are quite easily separated because of their differing solubilities. For instance, eserine is soluble and calabarine insoluble in ether.

When using pilocarpine it must be remembered that jaborandi also has two alkaloids that are antagonistic in physiological effects, and that pilocarpine is changed into jaborine by oxidation or by heat alone. Jaborine is more easily soluble in ether and less easily soluble in water than pilocarpine. Commercial pilocarpine may be contaminated with jaborine. We must not blame pilocarpine too readily; the fault may not be in the pilocarpine.

Again, patients vary greatly in susceptibility to all the drugs commonly used for cathartic effects. Drugs may be old and have deteriorated, or they may be adulterated. In cases wherein several drugs are used—for instance, in hypodermic cathartics—in which either or all of those used in my experiments may be given, the combination may be a poorly balanced one—for instance, in combining eserine or pilocarpine, or both, with atropine. The addition of a very small amount of atropine, say 0.05 or 0.04 of a grain, may be very desirable, whereas if the dose had been increased to 0.1 grain the eserine is neutralized to such an extent as to make that amount of atropine very objectionable. Too much of a drug may be given, or too little, for satisfactory results. Finally, in considering the results of a cathartic which has been unsatisfactory, we should not lose sight of the condition of the bowels at the time of administration. The condition of the stomach, after a full feed or before, may have much to do with determining a cathartic effect, as, for example, barium experiments 1, 2, and 3.

We were all taught when we were students, I have no doubt, that when a horse is feverish and consequently constipated that effects are apt to be slow and indefinite; that a horse should never have a full purgative when weak from pre-existing illness or depressed from any cause; that purgatives should be administered with extreme care in inflammatory diseases of the respiratory organs, and very rarely when any portion of the alimentary canal is suffering from an inflammation.

Of 98 experiments the following have been quite unsatisfactory: Eserine experiments, 6, 9, 12, 13 (fatal), 14, 17, 19, 20, 21, 22, 23, 26, 30, 32, 37, 40, 48, 53, 55, 56, 58; also barium experiments, 16, 19, 24, 28, and 32. (For doses and results, see Tables D, E, and F.)

E. (13). Brown horse; poor condition; quite old; weight, 1200 pounds. Dose, 3 grains eserine at 12 M. This horse was poor and weak and supported in slings at the hospital at the time of this experiment. On the basis of 3 grains per 900 pounds this horse actually received 4 grains. The purpose of the experiment was to study the effect of such a dose upon a horse in his condition, and then to post-mortem the horse and study the effect upon the mucous membrane involved. This was evidently a very sick horse from the time the medicine took effect until he was dead. The disturbance was in general *violent*, such as a practitioner would not care to see in actual practice. The pain was very severe, and the feces effect also very severe, with six discharges during the first hour and thirteen during the first three.

Post-mortem: Subject "John." Died suddenly at 5 P.M. Post-mortem at 5 P.M. November 14th. Normal except as noted; only alimentary canal was examined. *Cæcum*—Arch and also meso-cæcum show large, bright blush, with somewhat darker pin-head spots. *Large colon*—First portion and suprasternal flexure similar but less marked. *Ileum* shows same condition, practically whole length. *Jejunum* terminal, ½, same condition. The congestion or hyperæmia involved noticeably the muscular coat. As normals could not be obtained for this experiment, the writer was therefore unable to make comparison of them with those obtained under effect of medicine. Feces, first catharsis at 12.35; 6 during the first hour, 5 during the second, 2 during the third, 1 from 3 to 5; died at 5 P.M. Total number to that time, 15. Total weight, 9.07 pounds. Tenesmus evident during the whole time after the effect of medicine appeared until horse died. Slight pain at 12.25. Considerable gas. Began perspiring very freely at 12.40, which continued until death. At 5 o'clock, just before dying, the heart-action was irregular and violent, with pulse 36 and weak. Dropped suddenly into slings and died.

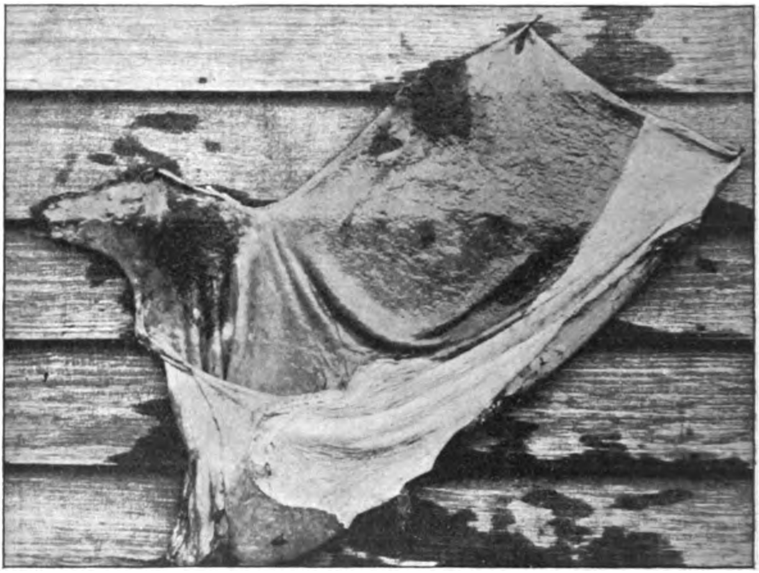
B. experiment (11). Illustrates a rather large dose of barium with *poisonous effect* in a peculiarly susceptible horse. Dose, 15 grams at 7 A.M. in bolus. This experiment is interesting in that the horse died, and a post-mortem was obtained showing some interesting developments. Feces recorded for twenty-four hours: Period A, 8 discharges; weight, 32 pounds; normal in all respects. Horse in good health. Period B, first discharge at 7.35; 6 the first hour; 14 the second; 8 the third; 11 from 10 A.M. to noon; 12 from noon until 3.30 P.M. Died at 3 30. Total number for the 8½ hours, 51; weight, 50 pounds. Temperature not materially varied; pulse 60 at 10 A.M.; 54 at noon. Respiration 42 at 9 A.M.; 48 at noon. Slight tenesmus between 7.50 and 8.40; uneasy at 8.45; lay down at 9 o'clock; no excessive pain from 9 until noon. Feces very thin; commenced trembling at 3.30; struggled; fell suddenly at 3.32; struggled to her feet again after considerable effort; immediately fell on left side; leg and body-muscles quivered spasmodically; died very suddenly.

Post-mortem record of Kenwood (black mare). Thoracic cavity and contents apparently normal. Omitted to examine interior of œsophagus. Stomach shows two very distinct areas of intense local inflammation (both in right cul-de-sac and greater curvature). Mucous membrane swollen and purple in two spots just the shape and size of the barium balls; borders sharply defined. She had lain down several times during operation of the physic, and we noticed she would stagger a little and tremble slightly for a moment after rising. She had also acted in the same way during operation of her last dose of barium.

Jejunum and ileum normal. Mucous membrane of cæcum and first, second, and third portions of the colon (less marked on fourth portion) mildly congested. Small colon and rectum filled with soft feces, consistence of cow's feces, dirty gray color. Feces about this same condition throughout the entire canal, all soft and uniform. Very little feces in the small intestines, but throughout this portion there was a great abundance of fluid about the consistence of gravy and about the color of light blue clay. Peritoneal surface of the diaphragm nearly covered with little patches of organized fibrinous exudate—possibly the result of some pre-existing peritonitis, but singularly local.

Brain-substance and meninges apparently normal, except a congestion of each choroid plexus and a decided congestion of the pia mater and inner arachnoid around inferior portions of the cerebellum. The inferior surface of all three lobes of the cerebellum deeply reddened, with raised, swollen appearance—could easily separate a thin layer from this portion of the cerebellum that resembled a blood-clot, quite firm, difficult to tear.

B. Experiment (32). Shows an interesting result from intravenous use of barium. *Severe local swelling.* Dose, 1 gramme, intravenously, 10 per cent. solution. Feces record, Period A, twenty-four hours; number 8; weight, 22 pounds; normal. Period B, total number, 12; weight, 12 pounds. A distinctly constipating effect. Pain moderate; effect on pupils, *nil.* This experiment was continued during the third period of twenty-four hours, C, to study the effects of this dose upon the feces records, with the following results: Total number, Period C, 8; weight, 28 pounds. A very unfavorable showing from Period B, when the cathartic effect should have been active. A large swelling slowly appeared on the side of the neck and extended downward perhaps eight inches, and upward about two inches from the side of injection. The next day after injection it was about one foot long and five inches wide, and perhaps an inch and a half above the level. The swelling did not seem painful or annoy the horse, and went down by the 24th. No abscess developed. Horse in good health, eating and feeling well all the time. The vein was not obstructed, as shown by pressure



Stomach. Barium experiment (11).

below the swelling. The needle entered the vein easily, and the blood flowed through the needle very freely, showing that the needle was unquestionably in the vein. The horse stood quietly for the injection, and it is almost impossible that any barium should have been injected outside the vein. In view of this the swelling is difficult to account for.

Unsatisfactory experiences with barium reported by others. (See *Journ. Comp. Med. and Vet. Archiv.*, vol. xvii. No. 7, Mollereau; *Ibid.*, Ries; *Berliner Wochenschrift*, No. 24; *Ibid.*, No. 27; *Vet. Journ. and An. Comp. Path.*, vol. xli. No. 246, Nemo; *Veterinary Magazine*, vol. iii. No. 2, Treacy; *Am. Vet. Review* (from *Berl. Thier. Woch.*), vol. xx. No. 1, Bieser; *Journ. of Comp. Med. and Vet. Arch.*, vol. xvii. No. 9, Plaskett; *The Veterinary Magazine*, vol. iii. No. 7, p. 445, Cary.)

TABLE D.—HYPODERMIC TABLE.

Abbreviations explained at the foot of the table.

Dose.	Name.	Exp. No.	Bowel discharges.					
			No.	Weight.	Pain.	F. effect.	1st hour.	1st 3 hrs.
E .5	Jim, 2d,	19	*17 15	*32.5 32.5	o	o	3	3
"	Dick,	22	8 11	30 37	o	o	1	3
E .5 P 1	Jim, 2d.	20	14 12	25.5 32.5	o	o	3	3
E .5 P 2	Dick,	23	8 6	37.5 ...	o	o	0	1
E .75	Lady,	35	9 10	20 28	o	x	1	4
E 1	Jim, 2d,	18	18 46	47.5 76.5	x	xxxx	6	30
"	Josie,	48	10 9	37 24.5	o	— C	1	1
"	Dick,	27	10 10	50 32.5	o	x	2	5
E 1, P 2	Dick,	24	7 14	32 41	o	xx	1	6
E 1, P 2 A .25	Dick,	30	8 9	38 34.5	o	— C	0	0
E 1, P 2 A .08	Dick,	31	10 7	39.5 34.5	o	x	3	0
E 1, P 4 A .08	Dick.	32	10 7	39.5 34.5	o	— C	0	1
"	Dick,	33	10 10	31.5 36.5	o	o	2	2
E 1 P 4 A .04	Dick,	34	11 10	38.5 41	o	x	2	3
E 1.5	Jim, 2d,	17	17 49	47 53	x xxx	See rec. 17 xxx	20	42
"	Josie,	50	9 11	32.5 34	x	o	2	2
"	Dick,	28	8 25	32.5 36.5	xx	xx	16	22
E 1.5, P 2	Dick,	25	9 11	33 35	x	x	2	5
E 1.5, P 4 A .05	C. C.	55	8 13	29 31	See rec. xx	x	Mistake 2	in A. 2
E 1.5, P 4 A .05	C. C.	57	8 13	34 37	xx	xx	3	4
"	Whitey,	56	12 14	40 37	x	— C	Mistake 0	in A. 1
"	Whitey,	58	9 14	31 40	xxx	xx	5	7
"	Kenwood,	54	10 14	33 34	o	x	3	8
E 1.5, P 4 A .14	Dolly,	31 A	... 0	... 0	o	o	H. C. Im 0	paction. 0
E 1.5, P 4 S .5	Lightfoot,	46	... 18	... 25	x	xx	7	17

Dose.	Name.	Exp. No.	Bowel discharges.					
			No.	Weight.	Pain.	F. effect.	1st hour.	1st 3 hrs.
E 2	Jim, 2d,	21	*15 57	*... ...	xxxx	xxxx	15	47
"	Dick,	29	7 37	39.5 46.5	x	xxx	17	28
"	Jim,	4	16 15	39 32	x	x	0	3
E 2 A .05	Whitey,	59	14 22	42 44	xx	xx	5	7
"	C. C.,	60	12 23	42 42	x	xxx	7	9
E 2, P 2	Jim,	7	9 18	39 37	xx	xx	6	14
"	Jim, 2d,	15	18 47	50 51	xxx	xxx	17	38
"	Dick,	26	8 23	47 52	xxx	xx	13	20
E 2, P 2 A .2	Dolly,	30 A	... 2	... 4	xx	x	H. C. Im 2	paction. 2
"	Dick, 2d,	38	... ...	... ...	o	o	H. C. Im 0	paction. 0
E 2, P 2.5 S .5	Jim,	11	9 40	26.8 31.5	xxx	xxx	11	35
E 2, P 4	Lady,	37	9 27	23.5 26	xxx	xx	See re 14	cord. 21
E 2, P 4 A .05	Lady,	43	11 19	29 32.5	xx	xx	10	16
"	Lady,	49	13 12	24.5 28	xx	o	8	3
"	Dick, 2d,	39	... ...	... ...	o	x	See exp. 0	record. 4
"	Dick,	36	10 25	38.5 36	x	xxx	15	19
"	C. C.,	51	8 23	19.5 36	xx	xx	9	14
"	Whitey,	52	15 15	32.5 40	xx	xx	7	8
"	Kenwood,	53	9 29	33 42	xx	xxx	4	20
E 2, P 4 S .25	Lady,	47	*10 32	*26 24.25	x	xxx	15	26
"	Dick,	44	11 22	33 42	o	xx	7	17
E 2, P 4 S .5	Lady,	45	11 16	20.25 25	xx	xx	2	14
"	Dick, W. W.,	41	... 13	... 21	o	xx	4	12
"	Dick,	42	9 32	38 54.5	o	xxx	20	28
E 2.5, P 2.5	Jim,	9	4 27	19.3 27.2	xxx	xxx	4	25
"	Harry,	8	7 14	25.7 31	xx	xx	5	12

Dose.	Name.	Exp. No.	Bowel discharges.					
			No.	Weight.	Pain.	F. effect.	1st hour.	1st 3 hrs.
E 2.5 P 2.5 A .1	Jim,	10	*10 13	*15.3 20.3	x	x	2	7
"	Jim, 3d,	16	13 20	40 45	x	xx	5	10
E 2.5 P 1.5 A .25, S 1	Jim,	12	10 10	20.3 25	o	o	0	0
E 3	Harry,	5	... 19	... 33	xxx	xxx	3	16
"	Jim,	6	11 30	37 33	xxx	xxx	10	24
"	John,	13	15 ...	9 ...	xxxx	xxxx	6 Died.	13
"	Jim, 2d,	14	5 56	10 55	xxx	xxx	4	39
E 3, S .1, A 1	Cow,	40	... ...	... ...	— C o	o	0	0

TABLE E.—$BaCl_2$, PER MOUTH.

Dose.	Name.	Exp. No.	Bowel discharges.					
			No.	Weight.	Pain.	F. effect.	1st hour.	1st 3 hrs.
8	Kenwood,	1	6 9	28 27.5	o	x	1	3
8	Whitey,	3	7 19	23 49	o	xxx	3	15
8	C. C.,	2	7 14	22 46	o	xx	2	8
10	Kenwood,	4	8 52	28 48	xxx	xxx	1	19
10	C. C.,	5	13 15	40 25	Mistake x	in dose. x	26 hours. 0	26 hours. 0
10	Dolly,	15	23 19	35 33	o	xx	4	9
10	Brownie,	14	— 13	— 26.5	o	x	1	2
10	Nick,	16	9 11	27 23	o	o	1	4
10	Dandy,	29	11 16	40 42	o	x	3	4

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* Total numbers and weights of bowel discharges for Periods A and B in each experiment.

E.	Eserine.	P.	Pilocarpine.
A.	Atropine.	S.	Strychnine.
o.	Nil.	xx.	Severe or decided.
x/2.	Very slight effect.	xxx.	Very severe or decided.
x.	Slight effect.	xxxx.	Extreme.
F. effect.	General cathartic effect.	H. C.	Hospital case.
1st hour.	Number of bowel discharges during the first hour after giving dose.		
1st 3 hours.	Number of discharges during the first three hours after giving dose.		

Doses quoted are on basis of 900 lbs. weight and expressed in grains.

Dose.	Name.	Exp. No.	Bowel discharges.					
			No.	Weight.	Pain.	F effect.	1st hour.	1st 3 hrs.
12	Kenwood,	6	* 7 49	* 29 43	x	xxx	6	32
12	Whitey,	8	11 11	34 32	o	o	0	1
12	C. C.,	7	10 28	31 36	x	xxx	4	18
11.6	Nick,	19	9 11	27 ...	o	— C	1	2
12.5	Queen,	9	... 13	... 53	o	x	1	4
12.5	Brownie,	20	14 11	32 ...	x/2	x	1	2
12.5	Brownie,	27	11 13	34 44.5	xx	Active 12 M. to 5 P.M. xxx	0	1
12.5	Nick,	25	9 14	29.5 37	o	x	1	4
12.5	Kit,	24	12 12	54 57	o	o	0	1
12.5	Prince,	26	10 34	44.5 84	Gaunt and much depressed afterward. x	xxxx	3	10
15	Kenwood,	11	8 51	32 50	xx	xxxx	8½ hrs. then died. 6	28
20	Whitey,	13	11 28	26.5 51	xx	xxx	Active 12 M. to 5 P.M. 0	2
15	C. C.,	12	9 48	31 40	xx	xxx	13	35
15	Queen,	10	... 11	... 40	o	x	0	0
19.1	Nick,	23	8 14	24 33	x	x	1	3

TABLE F.—$BaCl_2$, INTRAVENOUS.

Dose.	Name.	Exp. No.	Bowel discharges.					
			No.	Weight.	Pain.	F. effect.	1st hour.	1st 3 hrs.
0.75	Whitey,	18	10 16	33 34	o	xx	9	12
0.75	C. C.	17	11 30	28 32	x/2	xx	12	20
1	Whitey,	21	12 24	39 40	o	xx	11	12
1	C. C.,	22	9 28	37 42	x/2	xxx	14	15
1	Nick,	32	8 12	22 12	xx	— C	1	4
1	Dandy,	31	16 20	37 27	x/2	x	7	9
1.5	Whitey,	28	12 14	42 35.5	xxx	xx	7	9
1.5	C. C.,	30	11 43	41.5 42	x/2	xxx	28	38

Abbreviations same as in Table D.
Doses quoted on a basis of 1000 weight and expressed in grammes.
Doses administered in 10 per cent. solution.

The following comparisons are made in view of similar doses, the differences being only such as necessary to furnish the desired data. The number of bowel discharges for twenty-four hours, the weights of the same, the pain effect with general disturbance, and the general bowel effects. The number of discharges during the first hour after the administration of the medicine, or after the first appearance of the cathartic effect, and the number during the first three hours after that time, are also considered. (See Tables D, E, and F.)

As to the *value of pilocarpine* in connection with eserine, the comparison of experiments (5) and (8), (28) and (24), (28) and (25), (29) and (26), (27) and (24), (4) and (7), (6) and (9), (21) and (15), (59) and (52), (60) and (51), (60) and (57), making a total of eleven comparisons, shows six in favor of pilocarpine and five in favor of eserine alone.

A few of the experiments seem to show distinctly in favor of pilocarpine; with the others the comparison is but slightly in its favor. On the whole, the comparison is not strongly in favor of pilocarpine.

Eserine alone, as compared with eserine and atropine. A comparison of experiments (21) and (59), (29) and (60), (4) and (59), (5) and (59), (6) and (60), (13) and (59), (14) and (60)—a total of seven comparisons—shows six strongly in favor of atropine and one with results about equal.

NOTE.—All the comparisons in this paragraph, of eserine with eserine and atropine, are with different horses, and should not, therefore, be estimated at the same value as though the compared doses had been given to the same horse for each comparison. It seems quite clear, however, that atropine in very small doses makes a desirable addition to eserine.

Eserine as compared with eserine, pilocarpine, and atropine. The comparison of experiments (29) and (51) (different horses); (17) and (57) (different horses); (5) and (43) (different horses); (4) and (53) (different horses); (28) and (54) (different horses); (21) and (52) (different horses); (27) and (31) (same horse); (27) and (33) (same horse); (29) and (36) (same horse); (27) and (34) (same horse); (48) and (34) (different horses); (18) and (31) (same horse), making a total of twelve comparisons, with seven distinctly in favor of pilocarpine and atropine, three in favor of eserine alone, and two with results practically equal. On the whole, the comparison is decidedly in favor of the combination.

Eserine and pilocarpine as compared with eserine, pilocarpine, and atropine. A comparison of experiments (9) and (10) shows distinctly in favor of atropine; (37) and (43) also distinctly in favor of atropine.

Eserine and pilocarpine as compared with eserine, pilocarpine, and strychnine. A comparison of experiments (7) and (11), (37) and (45), (37) and (47), (15) and (11), (26) and (11), making a total of five comparisons, with two strongly in favor of strychnine; two distinctly in favor of strychnine; and one with results about equal.

Eserine, pilocarpine, and atropine as compared with eserine, pilocarpine, and strychnine. A comparison of experiments (43) and (47), (43) and (45), (36) and (62), (36) and (44), (52) and (47) (different horses); (54) and (46) (different horses); (51) and (44) (different horses); (57) and (46) (different horses)—a total of eight comparisons, seven strongly in favor of strychnine and one with results about equal. The whole comparison is strongly in favor of the strychnine in the matter of weights of actual feces moved, number of discharges, and permanence of effect. (See Tables D, E, and F.)

With hypodermic cathartics the item of balancing the medicine used is very important, especially with atropine and strychnine, too much of either being objectionable and too little without effect.

I have endeavored to make a comparison of eserine combinations with barium chloride, using moderate and representative doses of each. These comparisons are selected at random, some of them being upon the same horse and quite a number with different horses. I wish to emphasize the fact that I do not attach much importance to comparison of different cathartics on different horses in isolated cases, but if a number of experiments can be gotten together the general averages mean something. Another lot of comparisons, selected at random might vary the results to some extent, but not a great deal.

A comparison of E. 59 (dose, eserine 2 gr., atropine 0.05 gr.) with B. 3 (dose, 8 grammes per mouth) shows distinctly in favor of the barium.

A comparison of E. 60 (dose, eserine 2 gr., atropine 0.05 gr.) with B. 2 (dose, 8 grammes per mouth) shows results practically equal, the weight somewhat in favor of barium.

A comparison of E. 58 (dose, 1.5 eserine gr., pilocarpine 4 gr., atropine 0.05 gr.) with B. 8 (dose, 12 grammes per mouth) shows in favor of the eserine, but both very unsatisfactory.

Comparison of E. 52 (dose, eserine 2 gr., pilocarpine 4 gr., atropine 0.05 gr.) with B. 21 (dose, 1 gramme intravenously) shows slightly in favor of the barium; pain in favor of the barium; weight of feces in favor of the eserine.

Comparison of E. 51 (dose, eserine 2 gr., pilocarpine 4 gr., atropine 0.05 gr.) with B. 22 (dose, 1 gramme intravenously) shows very strongly in favor of the barium.

Comparison of E. 54 (dose, eserine 1.5 gr., pilocarpine 4 gr., atropine 0.05 gr.) with B. 1 (dose, 8 grammes per mouth) shows results practically equal.

Comparison of E. 53 (dose, eserine 2 gr., pilocarpine 4 gr., atropine 0.05 gr.) with B. 4 (dose, 10 grammes per mouth) shows strongly in favor of eserine.

Comparison of E. 43 (dose, eserine 2 gr., pilocarpine 4 gr., atropine 0.05 gr.) with B. 15 (dose, 10 grammes per mouth) shows slightly in favor of the eserine (different horses).

Comparison E. 36 (dose, eserine 2 gr., pilocarpine 4 gr., atropine 0.05 gr.) with B. 32 (dose, 1 gramme intravenously) shows very strongly in favor of eserine (different horses).

Comparison of E. 47 (dose, eserine 2 gr., pilocarpine 4 gr., strychnine 0.25 gr.) with B. 28 (dose, 1 gramme intravenously) shows strongly in favor of eserine (different horses).

Comparison of E. 44 (dose, eserine 2 gr., pilocarpine 4 gr., strychnine 0.25 gr.) as compared with B. 8 (dose, 12 grammes per mouth) shows strongly in favor of eserine (different horses).

Comparison of E. 45 (dose, eserine 2 gr., pilocarpine 4 gr., strychnine 0.5 gr.) with B. 7 (dose, 12 grammes per mouth) shows distinctly in favor of barium (different horses).

Comparison E. 41 (dose, eserine 2 gr., pilocarpine 4 gr., strychnine 0.5 gr.) with B. 30 (dose, 1.5 grammes intravenously) shows strongly in favor of the barium (different horses).

Comparison E. 42 (dose, eserine 2 gr., pilocarpine 4 gr., strychnine 0.5 gr.) with B. 31 (dose, 1 gramme intravenously) shows strongly in favor of the barium (different horses).

Comparison E. 53 (dose, eserine 2 gr., pilocarpine 4 gr., atropine 0.05 gr.) with B. 6 (dose, 12 grammes per mouth) shows slightly in favor of the barium, both nearly ideal; both pain and weight slightly in favor of the barium (same horse).

Comparison of E. 57 (dose, eserine 1.5 gr., pilocarpine 4 gr., atropine 0.05 gr.) with B. 17 (dose, 0.75 grammes intravenously) shows strongly in favor of the barium, especially as to pain (same horse).

Comparison E. 58 (dose, eserine 1.5 gr., pilocarpine 4 gr., atropine 0.05 gr.) with B. 18 (dose, 0.75 grammes intravenously) shows results practically equal; pain in favor of the barium; weight of feces in favor of the eserine.

A total of seventeen comparisons: seven in favor of the eserine combinations, seven in favor of barium, and three with results practically equal—a remarkably even comparison for experiments selected at random.

I have endeavored to select only such experiments as illustrate moderate doses wherein the effects were reasonably representative. It is evident that with the intravenous use of the barium the results are more uniform, and there is a greater uniformity among different horses as to susceptibility than when this drug is administered per mouth.

When we compare the newer cathartics—eserine and barium—with aloes as to the actual amount of feces moved, uniformity of satisfactory results when used solely for cathartic effect, uniformity of susceptibility, and in any case when the element of time is not all important, the result is very much in favor of the latter. Especially is it true in the matter of actually unloading the rectum and colon. The cathartic effect seems to last longer, the pain disturbance is uniformly less, with no muscular tremors under ordinary circumstances. There is no objection to aloes as to possible heart-complications; there is but a slight tenesmus under ordinary circumstances and much less after-constipation than with either eserine or barium. In any case, when I have time to wait, my preference among these is decidedly in favor of aloes for horses.

General comparison of eserine, pilocarpine, etc., compared with barium. In the item of expensiveness the comparison is decidedly in favor of barium. Permanence of chemical form greatly in favor of barium. Ease of administration in favor of the eserine. Promptness of effect is, first, in favor of the barium per intravenous method; next, in favor of the eserine hypodermically; third, in favor of the barium per mouth. As to cathartic results, considering numbers and weights of discharges, the decision is uncertain, results being practically equal. The comparison as to pain-disturbance is in favor of the barium. Muscular tremors stand distinctly in favor of the barium. I think the comparison as to certainty of cathartic effects is in favor of the eserine, for I have found several horses that did not respond to large doses of barium. It is true that horses vary somewhat in susceptibility to eserine, but not to the extent as with barium. I have never found any horse in normal condition that did not respond to reasonable doses of good eserine.

When we compare the two in reference to the possibility of serious or even fatal results, the comparison is very much in favor of the eserine.

As to the disturbance in temperature, pulse, and respiration, neither has shown any uniform results. As to the after-effect upon the bowels I am not prepared to express an opinion. My experience with the two drugs gives me the impression that with repeated doses of eserine the susceptibility increases and with barium it decreases; but this is not given as an assertion of fact.

As to dosage: The smallest dose of eserine which has given good results was 1 gr. (see E. 18). The largest dose of atropine which has allowed satisfactory results has been 0.1 gr. (see E. 16). I consider the largest dose of eserine advisable under ordinary circumstances to be 3 gr., and would usually give less.

In using strychnine with the eserine we should not use more than 0.5 gr., and usually but 0.25 gr. I believe this commonly increases the amount of actual feces moved and adds to the desirable effect of the eserine. Ordinarily I would not use more than 0.05 gr. atropine.

As to pilocarpine, I am skeptical as to its value in connection with eserine.

As to barium, I would not give less than 8 grammes nor more than 15 grammes per mouth, and not more than 1.5 grammes intravenously, nor less than 0.75 grammes per 1000 pounds, if I was anxious to have definite results. Since the experience with B. Exp. 11, and also with the horses "Brownie" and "Prince," the writer is somewhat afraid of barium in bolus or capsule. When using barium in solution, an ordinary dose should be dissolved in from six to eight ounces of water.

The intravenous injection of barium chloride is feasible in general practice without the employment of fine technique.

Three to 5 c.c. of air have been injected several times without noticeable effect. I have only known one case of serious local trouble among all that have been reported with the exception of my own (B. 32).

The physiological effects which writers on human materia medica describe—depression of the temperature and slowing of the heart, etc.—have not been manifested in these experiments; neither any posterior paralysis, except in the fatal case (B. 11), and no case of peculiar posterior lameness such as others have reported.

My experience with hypodermic cathartics, of which eserine forms the basis, and with barium, gives me the opinion that both are useful, but should not replace the old cathartics.

Barium is useful, but not the ideal, harmless drug of magic power and accuracy for simple catharsis or the treatment of colics which some of our friends would lead us to think.

DISCUSSION.

Dr. Bell: It is a subject that is attracting a great deal of attention, and the opinions with regard to the effects of the various combinations are as numerous almost as the experiments. I think that almost all veterinarians experiment with the various combinations and make up their minds which they are most fond of, according to their experience, and finally settle to one form of treatment. As regards my own experience, I have had but little with these combinations, preferring, in all cases where possible, to rely upon the old, and which I consider the most reliable form of treatment.

Dr. Gill: I have had the same experience as Dr. Reynolds in the use of barium chloride and eserine. We cannot always depend upon getting the same results. I have found in giving a regular dose of eserine to a horse to get those symptoms spoken of by Dr. Reynolds, and also in barium-chloride treatment, I prefer to use, and do use to a great extent, the alkaloid aloin. It is more easily prepared and more stable and reliable. The bad effects of the drug, such as pain, etc., are not as great with aloin, and I rely almost entirely on it in my practice where I need a slow cathartic—that is, in relation to the other alkaloids on it.

Dr. Rechtenwald: In my use of these drugs the horses die so quick under the influence that I cannot get time to see its effects.

Dr. Reynolds: I hope I have not conveyed a wrong impression to this body: that I have condemned either barium or eserine. I want to say that I consider them both useful, but I specially want to take away the unreasonable amount of credit and confidence that we have given to barium.

PHYSIOLOGICAL VARIATIONS.

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In biological study we generally identify form with function, but sometimes their relations are vague, at others they wholly elude our perception, yet we usually assume the interdependence of anatomy and physiology.

We are not clear as to which is cause and which is effect, although as a rule we attribute physiological or pathological phenomena to structural differences, but it seems more probable that the reverse is true, and that anatomical peculiarities are due to physiological variations. We attribute the form of the ruminant to rumination, not rumination to the complexity of the stomach; carnivorous teeth to the devouring of flesh, and not flesh-eating to the form of teeth, yet, knowing the functions of these organs, we may refer an animal to a given order by their form. In animal physiology, whether normal or pathological, it is important that in so far as possible we comprehend each function in its true light and not erroneously ascribe physiological peculiarities to irrelevant details in structure.

It is a current practice in medicine, not wholly unknown in other professions, to attempt to answer all questions propounded with some plausible theory, which, if it does not explain, serves at least to cover up some very rugged points, and so we attempt frequently to explain the occurrence of physiological or pathological phenomena by some imaginary or irrelevant anatomical detail. A good example of this recklessness in formulating theories is the common explanation given of the occurrence of roaring in horses by attributing it, and its usual seat on the left side, to the disposition of the left recurrent laryngeal nerve; but when we recall that other domestic animals, in none of which roaring occurs, have the same disposition of the nerve, it is evident that we must look further for an explanation, and conclude that the existence of roaring in horses is dependent rather upon some physiological variation than anatomical peculiarity. Closely allied in many respects is the peculiar equine malady, which, in a paper presented to this Association in 1894, I termed *enzootic spasm of the larynx*—a disease attributed by me at an earlier date to the eating of frozen maize, by others to feeding on Indian vetches, and by still others to poisoning through the use for drinking of mill-tailing waters. None of the causes proposed offer any explanation for the limitation of the disease to solipeds and the impunity with which other animals may eat frozen maize or Indian vetches or drink the tailings from smelters or ore-mills.

Of greater interest, because of its more general prevalence and consequent economic importance, is the disease of solipeds known as "heaves," a malady which has led to many theories and controversies but to no reliable conclusion as to its nature.

Putting these three together, they constitute an isolated group of diseases confined to solipeds and almost wholly to horses, mysterious in nature and without prototypes in other animals unless we except the asthma of man; yet we find no anatomical reason why solipeds should monopolize to the exclusion of other animals the entire group of functional respiratory affections.

Another well-marked peculiarity of the horse which is very lightly but ineffectually explained is the rarity of vomition, which it is said is due to the peculiar palate or the arrangement of the cardiac orifice of the stomach, so that he *cannot* vomit. We can tie a dog's œsophagus so he cannot vomit, but if we give him emetin it will still induce nausea, and in the production of nausea rests the real difference between the two animals, for any of us of moderate experience knows full well that if a horse be nauseated he can vomit readily.

I have seen a horse sit on his haunches like a dog and vomit until certainly his stomach was well emptied, yet there seemed little amiss except the nausea, after the subsidence of which he appeared as well as usual. Again, I have been frightened to see the free vomition of decomposing food in a severe case of indigestion, in which the vomit was mixed with considerable quantities of blood, yet the vomition had apparently the salutary effect observed so often in dog and man.

We must then search for the rarity of vomition in the horse in the peculiar difficulty with which he becomes nauseated.

Each animal offers specific affections, which are as well marked and as closely defined by specific boundaries as those above mentioned, and their existence in or confinement to a given species cannot at present be explained except by some physiological peculiarity of the animal.

The semiology of disease is frequently very much modified by the functional peculiarities of the patient.

In the ordinary pneumonia of the horse the patient cannot lie down comfortably, while in the same disease the cow habitually assumes the recumbent posture with ease. Of greater physiological interest are the more essential symptoms produced by diseases alike essentially in etiology and nature, yet causing the most diverse effects upon the patient according to age, species, or other factors.

Indigestion in the horse produces pain and delirium; in the foal, pain and diarrhœa; in the cow, coma and paralysis; in the infant or puppy, convulsions; and while we may recognize certain differences in food or other causative factors, they do not fully account for the great variations of essential symptoms.

In the realm of transmissible affections we find a still more interesting example in rabies or hydrophobia, the cardinal symptoms of which in nearly all animals is intense fear, coupled with discordant efforts to protect self from imaginary foes, but we find this symptom strangely perverted in some animals. The sheep may attack rather tamely by butting, but its most marked symptom of the malady is nymphomania, although normally its sexual desires are ephemeral and never so intense in health as is observed in the bitch and cat, and strangely, too, the fact that the ewe is pregnant is no bar against the nymphomania.

The rabid pig shows no nymphomania, and, as observed by me, no attempt whatever at attack or defense, but rather tries by backing and whirling to get away from the imaginary foe.

Individual peculiarities are constantly observed in disease, and may prove interesting or confusing. I recall a case of colo-cæcal impaction in a mare where the ordinary extreme extension of the limbs as if to urinate was replaced by the animal standing on its hind legs with its forefeet propped up on a nail-tie at the side of the stall, about five feet from the floor, thereby accomplishing in a measure the ordinary effect as to position in a grotesque manner.

In the physiological action of drugs and medicinal agents we find great variations which we must constantly take into account, and not accept the behavior of a given agent in one animal as conclusive proof that it will act likewise in all others. Such an assumption frequently leads us to conclusions no less dangerous than false. In a paper presented to this Association last year[1] I had occasion to refer to the variation in the action of opium and morphine in the horse and man, being in the former, when given in large doses, a violent and dangerous excitant to the spinal cord and respiratory apparatus, while in man it generally poisons by producing coma; consequently if we accept the normal physiological action of the drug in man as our guide for its use in the horse, after passing a given dose which may have a slight anodyne action, we quickly reach an excitant effect, which is rapidly and dangerously intensified by increased doses, leading many veterinarians to destroy the lives of their patients in the vain attempt to reproduce the action of this drug as seen in man. But opium is by no means the only medicinal agent offering perplexing differences in action, which we can only attribute to physiological peculiarities in the various animals. This is particularly noticeable in our use of cathartics. Magnesium sulphate, so prompt and in many respects effectual in man and several of our domesticated animals, when uncombined is not only ineffectual in cattle, but under certain conditions seems rather to retard than encourage intestinal activity, although if combined with a liberal amount of sodium chloride it becomes quite efficient. We explain this deviation from the normal action of magnesium sulphate by saying that the addition of the sodium chloride increases the animal's thirst and thereby proves a valuable adjunct to the magnesium; but this does not explain why the adjunct is essential in cattle and uncalled for in man. Similiar variations hold true in the action of other purgatives, which, while not so well marked, lead us to elect certain members of the entire group for each of the various species of domesticated animals and even for the various ages and breeds.

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[1] Therapeutics of Colic.

The physiological peculiarities of animals which determine the pathogenic power of living organisms offer an interesting field for investigation. One phase of this topic was suggested but not considered in a paper presented to this Association in 1894 upon the "Influence of Climate and other Environments upon the Character and Distribution of Disease," in which it was noted that many diseases possess well-defined geographical limits depending upon climatic or other influences. These influences evidently may act either subjectively or objectively; they may weaken or destroy the pathogenic organism or increase or decrease the resisting power of the animal to be attacked, which latter we must attribute to variations in the functional peculiarities due to environment—changes which must be constantly taken into account in every department of our science. A disease which is a serious scourge in crowded quarters or under certain climatic influences may prove utterly insignificant under other conditions.

In the paper above mentioned it was noted that the physiological conditions of range horses at high altitudes in our Western States rendered glanders among them an almost non-contagious affection, with a marked tendency in those affected to recover spontaneously. At the same time animals kept in bad stables in the adjacent valleys and put to hard work contract glanders readily and severely.

Since other diseases show equal variations under changed climatic conditions, a study of these become essential not only in veterinary sanitary science, but also in the daily work of the private veterinarian.

We fully recognize that animals strengthened or depressed by food, labor, or housing possess varying powers of resisting the encroachment of disease, and that these same influences enable or disable an animal to undergo a given surgical operation.

In transmissible diseases the powers of species or individuals to resist the inroads of the pathogenic organism form one of our most intensely interesting studies. It is noticeable that but few of these affections have even a moderately wide specific habitat.

Anthrax, tuberculosis, rabies, and glanders present the widest range of possible existence, while most transmissible affections are confined to a genus or species. Thus Texas-fever, bovine pleuro-pneumonia, equine pleuro-pneumonia, equine distemper, canine distemper, hog-cholera, chicken-cholera, and a long list of such maladies have closely defined specific limits except possibly under artificial conditions. The functional causes which render one species vulnerable, another immune to given diseases, are already producing profound results in the domain of medicine, although the fundamental facts are not yet discovered. We fully recognize the value of physiological resistance to disease in the selection of animals for the artificial production of immunizing or curative agents. It is greatly to be hoped that the present intense activity in biological study will yet discover the causes of physiological immunity of one species against diseases to which another is highly vulnerable.

The crowning achievement of modern medicine is the artificial production of immunity against a disease to which the individual is ordinarily liable. While immunity as a result of the invasion of disease in a tangible form has long been recognized, it has been only recently that this immunization has been intelligently produced without the advent of the disease. The production of immunity by disease has always been regarded as a very grave danger in many diseases, few patients passing safely through the ordeal necessary to the physiological change, while the immunization without the presence of the actual disease has greatly lessened the danger and also has taught us undeniably, what many believed before the recent discoveries, that many patients acquire immunity against a given disease without exhibiting any of the cardinal symptoms of the affection, or, we might say, the patient has been invaded by a pathogenic organism which has produced the physiological changes we call immunity without producing the functional discord which we term disease.

Furthermore, we may consider the possibility of the production of physiological variations which may become hereditary, resulting in permanent, specific immunity, by which all the individuals of a species may become invulnerable to a given disease—a proposition which, although at first apparently untenable, yet seems quite as plausible as the great anatomical changes which we generally admit have taken place during a long series of generations. The multiplicity of pathogenic organisms besetting us on every hand would render higher animal life impossible but for very general specific immunity. We can realize the importance of the physiological peculiarities which cause this immunity by observing the seriousness of the already mentioned group of affections having a wide specific range of habitat, chiefly tuberculosis, anthrax, glanders, and rabies. All are much dreaded and constitute the most difficult group of affections to control or eradicate, largely because of their ill-defined specific limits, although none of them is exceedingly highly contagious, and each seems to have its climatic limitations.

The vast number of highly contagious and fatal maladies, such as hog-cholera or chicken-cholera, were they not confined to certain species by what we conceive to be physiological immunity, would inevitably sweep higher animal life out of existence, thus rendering immunity against a large proportion of pathogenic organisms in each animal a necessary safeguard to the survival of its species. In what manner the physiological changes are brought about by which specific or hereditary immunity ensues, little is known; but it seems not improbable that it is largely the same, but in a more gradual manner, as the individual immunity produced by the first attack of disease.

It appears that constant contact with certain pathogenic organisms begets gradual immunity without intervention of that train of phenomena we designate disease, so that while an animal is kept in unsanitary environments which weaken the normal resisting powers of the body, it affords, by habit, protection against those forms of disease the causes of which are constantly present and acting, so that an animal subjected to unsanitary conditions tends to acquire more or less immunity against these, but the reduced general vitality renders the system all the more vulnerable to new foes, as in case of the people in the slums of great cities, whose systems become inured to the dangers which are constant and withstand them in an extraordinary degree, but the advent of new ones, like typhus or cholera, causes appalling destruction.

Reptiles and batrachians revel among miasms and pathogenic organisms which would prove deadly to many other forms of animal life; and carnivorous and especially scavenger animals wax strong upon food teeming with decomposition-bacteria and their products, which would prove of serious consequence if ingested by others.

It is not unreasonable to believe that the physiological modifications induced by environment fixes in a degree the ability of various animals to undergo successfully certain physical injuries or surgical operations, which, possessing certain definite characters and being more or less uniform, offer special facilities for comparison. We find functional characters so greatly varying that operations which can be borne with impunity by one species of animal can be undertaken in others only with considerable danger; in one animal aseptic precautions are needful and imperative, in another they are wholly unnecessary. Take, as an example, operations affecting the body-cavity. In man or horse these can only be undertaken under the most scrupulous aseptic precautions; in the common fowl we cut in between the ribs without asepsis, spread the ribs apart, remove the testicle in sight, then probably break into an air-sac or two, break through the mesentery, search for awhile for the other testicle, then roll the bird over, cut between the ribs on the other side, secure and remove the remaining testicle, and turn the bird loose with a large opening passing entirely through the body from side to side, through the abdominal cavity, with considerable blood-coagula left without removal, and the air-sacs punctured so that essentially the lungs have been opened. The patient misses no food, loses no flesh, and apparently pays no heed to the ordeal through which he has passed. In other words, the chicken possesses immunity against wound-infections to a high degree. Several domestic animals possess a degree of immunity against wound-infection only slightly inferior to the fowl. The dog is especially resistant in this respect, so that the bitch is habitually spayed in utter disregard of aseptic precautions, sanitary surroundings, or surgical neatness, yet successfully and safely. Yet some writers advise great nicety in asepsis, anæsthesia, etc., in this operation, although their reasons for such careful technique do not appear; but we would not have it thought we counsel abandon and recklessness in the matter. We do hold, however, that it is our good fortune that complete asepsis is not imperative when we consider the difficulty with which it may be applied, and there is scant need for insisting upon so much labor to produce it for an operation not worth the trouble. Others say it is cruel to spay a bitch without first producing anæsthesia, but anæsthesia is more dangerous to the life of the bitch than the operation. Still another writer insists that the operation at best is cruel, but spaying a bitch causes less suffering and loss of flesh than giving birth to a single litter of puppies or even to going through a single period of œstrum; and it is consequently wrong to gauge our operations on dogs by the results of similar procedures on animals possessing quite different physiological properties.

While we as veterinarians must recognize the importance of asepsis in our handling of surgical or accidental wounds, we are not to be discouraged nor prevented from carrying out an operation because of the impracticability of applying aseptic or antiseptic rules with that exactness demanded in human surgery.

Wishing to try the economic value of spaying range mares, upon looking up the literature relating thereto it was found that one of my colleagues stipulated that the vagina should be scrupulously disinfected on the day prior to the operation, then again upon the day of operation, and that the procedure itself should be carried out under the most exacting rules: all blood-clots removed from the vagina, the vaginal incision sutured, and every possible precaution taken against wound-infection. My subjects, however, were wild mares, which must be lassoed and tied securely head and foot for the disinfection, released for a day, and then caught again for redisinfection and operation. The excitement of catching and the rough handling would offset the imperfect disinfection, and, moreover, the wild mares were not worth the expense. It was essential that a more practical method should be adopted, and consequently they were roped and forced into a branding chute, secured in a standing position, the feces removed from the rectum by an assistant; about one quart of a 1 : 5000 or less sublimate solution was thrown into the vagina, the incision quickly made, the ovaries taken away with the ecraseur, the blood-clots in the vagina left there, the vaginal incision left open, and the wild mares released; and, to my astonishment, it was found that the animals withstood the operation better than yearling colts do castration.

We also recognize physiological variations in breeds and individuals, and find that we must gauge our remedy and dose, must undertake or decline an operation, and must be guided in our prognosis by the functional peculiarities of the patient before us. In every department of our profession we need to closely follow the physiological peculiarities of our wards and to intelligently base our actions upon a practical study of their normal functions, and not to rely upon what we term general or classic physiology, which is made up of a series of deductions drawn from facts gleaned indiscriminately from the whole field of animal life and not always having a general application.

NAIL-WOUNDS OF THE FOOT.

By S. B. NELSON, V.S.

It is my desire to discuss this subject under the followings heads :

1. The anatomy of the foot.
2. Simple wounds.
3. Serious wounds.
4. Symptoms and diagnosis of nail-wounds.
5. Treatment.
6. Sequels resulting from nail-wounds.

ANATOMY. The anatomy of the foot will be reviewed in brief; the hoof, which is the external horny covering of the foot, may be divided into three parts, as follows : the wall, sole, and frog.

The wall is that portion of the foot that we can see when the foot is placed flatly on the ground.

The sole and frog form the entire bottom of the foot, with the exception of the small portion of the wall which is doubled on itself, and forms the bars; the frog is a mass of soft horn, triangular in shape; it fills a notch in the posterior part of the sole, its apex pointing forward; the sole is flat and circular, with the exception of the notch just mentioned; it joins with the entire lower border of the wall.

Between the bars and the frog are deep creases that are named the lateral lacunæ. In the posterior part of the frog is another, which is known as the middle lacuna.

The keratogenous membrane is a continuation of the skin, forming the lining of the hoof and the covering of the internal parts of the foot, which are the lateral cartilages; plantar cushion—sometimes called the soft or internal frog—because it is softer in texture, is nearly an exact counterpart of and situated just above the external frog; the os pedis and the os naviculare; the inferior attachments of the tendons of the perforans and the anterior extensor of the phalanges, muscles, to the os pedis; besides there are the ligaments, nerves, and bloodvessels.

Now I would like to give you some measurements from the points of the foot, where nails are most liable to penetrate: the sole is from three-eighths to one-half inch thick anywhere over its surface; also in the anterior part of the lateral lacunæ the distance to the os pedis is about one-half inch, while in the posterior two-thirds of the lacunæ the distance gradually increases to one inch; over the anterior third of the frog the distance through to the os pedis is two-thirds to one inch; from there back it is two inches through the frog and plantar cushion to the navicular joint. From above the bulbs of the heels downward and forward it is also two inches to the bony structure.

These measurements will often assist in the prognosis of the case if the distance that the nail entered can be ascertained; for instance, if the nail entered three-fourths of an inch at the apex of the frog or at the centre of the frog, will make some difference in the prognosis and treatment, as the first entered the os pedis, while the second only pierced the plantar cushion.

SIMPLE NAIL-WOUNDS. Simple nail-wounds are those where the nail has simply punctured the sole or frog and has not passed to the bony structures or the lateral cartilages; it may have passed into the plantar cushion. The exception to this is that when the puncture is close to the joint the inflammation resulting causes suppuration, which extends to the synovial membrane and which will result in an open joint.

SERIOUS NAIL-WOUNDS. Serious wounds are those where the nail has penetrated to the os pedis, bruising it or detaching a small spicula of bone, or the nail may have pierced the synovial membrane and entered the navicular joint, or the nail may have passed outward, injuring the lateral cartilages; from the latter open joint often results, as the internal surfaces are in close proximity to the synovial membrane.

SYMPTOMS AND DIAGNOSIS. The diagnosis of nail-wounds are generally quite easy, as the symptoms are plainly marked, and very often the owner or driver witnesses the accident, but just as often do they neglect to notice or they forget before they call advice whereabouts in the foot the puncture is. It is here that the hoof-searcher comes into prominent use, and it will nearly always locate proximally where the nail punctured the foot. The entire foot should now be washed perfectly clean and the hoof-knife used to pare the foot until the puncture is found, which will show itself as a black spot in the light-colored horn.

In those cases where no history is obtainable and the patient is seen standing on the toe, fetlock flexed, and continually pointing forward with the foot, look for a nail-wound. There may also be a slight swelling just above the hoof, which sometimes extends to the fetlock.

The first step in the examination is to feel the pulse in the large metacarpal artery if the lameness is in the front foot, or in the metatarsal artery if in the hind foot; because if the lameness is an acute one and in the foot, the pulse will locally beat hard and full—it will thump—it is easily distinguished from the pulse in the other limb.

The foot is hot to the touch. Now the hoof-searcher should be used, the foot cleaned, and the paring-knife or sage-knife used.

It is not enough to pare the foot until pus is found, but the entire side of the sole should be pared to know whether the injury is from a bruise or from a nail-wound. This is important to ascertain, as the owner often wishes to know, if possible, the cause of the injury.

Should a patient be brought to you for treatment—one that has a small, running sore at the bulb of the heel, in which by probing you find a small foreign substance—do not immediately pronounce it a gravel; it may possibly be a nail that has entered at the posterior part of the lateral lacuna, passed upward and backward, lodging in the plantar cushion, which makes the animal only slightly lame. Search the foot to see if it is a nail that has entered from below as just described, and it may save you the discomfiture of withdrawing the nail, head last, from the heel, when you could just as well have drawn it out head first from the bottom of the foot.

PROGNOSIS. If the injury has occurred inside of a circle two inches in diameter, whose centre is one-half inch posterior to the apex of the frog, it is quite likely to be a serious wound, as it only has to enter less than one inch to injure the os pedis. Behind this area, unless the nail has been forced in over two inches, the wound is not likely to be a serious one.

It often occurs that a correct diagnosis and prognosis are essential and of value to the owner of the patient, as at present he must know if it will be for his best interests financially to have the animal treated.

Outside of the two regions mentioned nail-wounds are rare, because the shoe protects the balance of the foot.

It is sometimes the case that an animal paws over an object from which nails protrude, forcing the nail into the foot above the bulbs of the heel; this generally makes an ugly wound; but whether it is a serious wound or not depends upon its proximity to the navicular joint.

TREATMENT. The different wounds need somewhat different treatment, depending on the severity of the wound; yet they are all dealt with on the same general plan. First, the foot should be washed to the fetlock with an antiseptic solution; the best is probably a solution of corrosive sublimate—one part in a thousand parts of water. It has fine antiseptic properties, is neat, inexpensive, and can be handily carried in tablet form. Creolin or lysol instead of the corrosive sublimate.

Next, the wound itself must receive attention. It has been an open question whether a nail-wound should at first be left alone or should be well opened. I always thin the horn for a good distance around the wound, and at the same time remove all the loose horn in the wound. This gives a nice, open wound, which, if without any complications, will heal under treatment in twenty-four to forty-eight hours; while if it had not been opened, the animal in many cases recovers from his lameness for three or four days—that is, until pus forms—and then he becomes lame again, and now the treatment may necessitate the animal's absence from work for several days.

After the wound has been washed with the antiseptic wash, the dressings are to be applied; this will first be iodoform, placed in a little gauze and soaked in the corrosive sublimate solution, because, while the iodoform is antiseptic, it is not aseptic; over this is placed a dressing of antiseptic gauze, and then all is covered with a layer of absorbent cotton, which has been soaked with the sublimate solution.

If the animal has plenty of time to recover before he is needed for work again, a triangular bandage is put over the dressing; but if he is to be used as soon as possible, then instead of the bandage he must be shod, and a plate placed over the shoe:

This consists of a steel plate the shape of the shoe, which will cover the bottom of the foot. It has in front a T-raise, which slides between the shoe and the hoof; the rest of the plate fits over the ground surface of the shoe, and is retained by means of two square-headed screws that are screwed into the heels of the shoe.

This protects the injured foot from being bruised during travel over the roads. Retain the dressings perfectly, so that no foreign matter can reach the wound, making aseptic surgery possible on the sole of the foot. It is easily removed by means of a small key when the dressings are to be reapplied, and will allow of the application of running water over the limb, if there is much inflammation present, without disturbing the dressing in the least.

After twenty-four to forty-eight hours an astringent wash is to be used to assist in hardening the exudate that is formed from the keratogenous membrane; the zinc sulphate and lead acetate solution, commonly known as white lotion, is very good for this purpose.

In the wounds where the position is over the navicular joint and where the nail has penetrated a considerable distance, first thin the sole or frog around the wound to relieve the pressure from the inflammation which may ensue. With this also crease the hoof, with the texture of it, to lessen the pressure laterally.

These wounds should not be probed, because if the synovial membrane has been punctured the discharge can be seen, and if not punctured might result from the probing, which would, of course, complicate matters.

The wound is to be well opened for drainage, as there may be considerable suppuration.

If the joint is open, the wound, after being cleansed, is dressed with powdered zinc sulphate on a fairly solid linseed-meal poultice, and this is covered with oakum and secured with the plate, thus doing away with the necessities of bandages that sometimes, no matter how carefully and securely they are put on, will be pawed loose or torn off. This dressing should be changed twice daily at first; later on once daily will suffice until the discharge of synovia stops.

Should exuberant granulations form in the wound and extend beyond the horn, as often happens, apply powdered nitrate of lead to them. This does not seem to affect the healthy tissue, and is more easily controlled than the liquid escharotics. Later the dressings should consist of astringent washes.

After the foot has been creased, apply fish-oil to it to assist in retaining the moisture obtained from the poultices and wet dressings.

Slings should be in readiness, so that if necessary the patient may be placed in them on a moment's notice; or, if the patient is not under the immediate care of the veterinarian, he should be put in them at first if the wound is at all serious.

The internal treatment will depend on whether the animal suffers great pain, has fever, condition of the appetite, physical condition, etc.

If there is pain, one of the various opiates is indicated. Morphine is probably the best; for the fever, some antipyretic is to be administered; the appetite is to be coaxed with different foods, but no food is to be allowed to remain before the animal from one meal to another; the bowels are to be kept in a fairly loose state; they must not be allowed to become constipated; if the patient is or becomes emaciated, administer tonics in some form, as iron, gentian, ginger, nux vomica, or arsenical compounds.

SEQUELS. The sequels that may result from the serious wounds are: Ossification of the lateral cartilages; contraction of the foot, both quarters or only one; quittor. For the latter it may be necessary to operate; but I will not take time to describe the operation, as I wish to mention a treatment for the others, and that is creasing the hoof as you see in the specimen before you. The hoof is oiled with fish-oil twice daily for one week, and then it is creased in the direction with the growth of the hoof; generally three creases are made in each quarter and a circular one at the union of the wall with the sole; the oiling is continued two or three weeks longer, when it may need be creased again as the hoof grows.

I hardly need to state that under this treatment the animal is to be shod with a plain shoe and not a bar shoe, as the latter will not allow the foot to expand as the plain shoe will.

FEEDING OF MILLET AND MILLET DISEASE.

BY T. D. HINEBAUCH, V.S.

MR. PRESIDENT, MEMBERS OF THE ASSOCIATION: In the fall of 1893, at the thirtieth annual meeting of the United States Veterinary Medical Association, and the first International Veterinary Congress of America, I read a paper on the same subject. In that paper we described lesions which we had every reason to believe were due to the feeding of millet; but as these animals died outside of our immediate care, there arose a chance for an argument regarding the conditions which we found present on post-mortem.

In order to secure further evidence relative to the influence of millet upon horses when used exclusively as an article of coarse food, we began another series of experiments, beginning on the 5th of December, 1894, using for our purpose No. 3, a black mare, aged, weighing 1035 pounds, and a bay mare, No. 4, six years old, weighing 1100 pounds. The results of those experiments, in a tabulated form, will be found on pp. 210, 211, as they have previously been published in the *Veterinary Magazine* for October:

On January 1, 1895, we discontinued taking observations, but continued to use millet as a food, giving both of them what they wished to eat. At the beginning of the experiment the black mare was sound to all appearances, and the most critical examination did not reveal a diseased condition of either muscular or osseous structure. The bay mare had previously suffered with navicular arthritis to a slight degree, and on December 25, 1893, I performed neurotomy for the relief of the lameness—the low operation being the one employed.

The hind legs were sound, and the most thorough examination failed to show a diseased condition.

On going to the barn, February 7th, No. 3 was found standing in the centre of the floor trembling violently, having some time during the night broken her halter. When led back to the stall she moved with great difficulty, showing extreme lameness and tenderness of the hock-joints, and on February 10th had great difficulty in getting up; laid down during the night of February 10th and 11th, but was unable to get up the next morning. With the assistance of three men we succeeded in getting the animal to stand, but she could not stand alone. The symptoms gradually wore off, and at 3.30 P.M. she began to stand without any help. At that time the hocks were swollen, tender, and sore to the touch, appetite gone, action of the kidneys arrested; she had not passed urine during the last twenty-four hours; refused to eat anything except a little bran until February 16th, when she again began to eat millet, but very sparingly, not taking hold of it in such a manner as to indicate a relish or even desire to eat. She gradually continued to grow better with returning appetite until March 11th, when at seven o'clock in the morning she was again seized with violent trembling, and on examination of the stall it was found that the secretions of the kidneys had again been arrested, there being no passage of urine since the previous morning. She refused to eat, and gradually recovered until the evening of April 2d, when she was again noticed to be ailing. During the night she lay down, but was again unable to get up without assistance. After being assisted to rise she stood, showing great lameness in the hind legs, and when she was led out to be killed at 2 P.M. on April 3d moved with great difficulty.

By a close observation of the foregoing notes it will be seen that previous to each attack the kidneys had failed to secrete, and the appetite was gone. In one attack—that of February 10th—she absolutely refused to eat any solid food until the 16th. During all this time she gradually grew better, showing that nature attempted to overcome the distressing effects produced by the feeding of millet.

Post-mortem Examination. Contents of the abdominal cavity, including the intestines and liver, in normal condition as far as we could determine with the naked eye; the thoracic cavity the same. An examination of the various joints of the body, as far as we opened them, did not show a single one in which the cartilage covering the end of the bones was not injured to a greater or less extent. The cartilage of the tibio-astragaloid articulation of the left hock-joint showed deep furrows running in a direction parallel with the motion during flexion and extension. Both grooves of the astragalus were partially denuded of cartilage, so that the corresponding elevations of the tibia which articulate in the grooves did not have cartilage interposed between them. The whole general appearance, instead of being a bright, whitish, glistening color, was of a dark, dull color, bordering on brown.

The synovial fluid, which escaped from the joint when opened, instead of being of an amber color, was brown and contained red blood-corpuscles, indicating that inflammation was present.

On making an incision in the right hock-joint the synovial fluid which escaped was of a much more brownish-black color, and also contained red blood-corpuscles. The cartilage had been removed in several places, and in one spot in the centre of the articular groove of the astragalus the bone had become pitted, showing that the disease had been present for some length of time. The other joints, including the pastern, fetlock, stifle, and both the head of the femur and acetabulum of the hind extremity, and also the pastern, fetlock, knee, elbow, shoulder-joint of the front extremity and occipito-atloido articulation, showed conditions similar to those which have been described as existing in the hock-joints. The muscular and ligamentous attachments seemed to be firm, at least they could not be detached by traction, except those of the right hock-joint. This undoubtedly was due to the extent of inflammation which was present.

During the progress of our investigation we received a letter from Dr. H. D. Paxson, of Wilmington, Del., which is here appended:

WILMINGTON, DEL., May 18, 1896.

T. D. HINEBAUCH, V.S., Fargo, N. D.

DEAR DOCTOR: Since reading your articles upon the subject of millet disease in horses I have had two cases in my practice which correspond, I think, to your description of the disease. I will recite what I can of the cases.

On March 30th last I was called to see a bay mare, weight about 1200, aged, and owned by Mr. Klund, of this city.

The disease had been noticed for three weeks prior to this. She had been stiff-gaited behind, gradually getting worse. When I saw her she was standing in the stall, with back arched, her weight behind resting on her toes, and with a pained expression. Had her taken out and walked. This was done with difficulty and caused her great pain. She walked entirely on toes behind, the heels not touching the ground. The gait was straddling.

I diagnosticated it sprain of the loins, not with much positiveness, however, and advised that she be destroyed, as she was old and had the heaves very badly. The owner objecting, I prescribed a liniment and had her put in slings. I did not see her again.

Date.	Time of day.	Temp. of air.	No. 3. Black Mare. Aged.									No. 4. Bay Mare. Six Years Old.								
			Temp. Fahr., horse.	Water, lbs.	Hay, lbs.	Oats, lbs.	Salt, ozs.	Urine, lbs. and ozs.	Specific gravity.	No. of urinations.	Weight of horse.	Temp. Fahr., horse.	Water, lbs.	Hay, lbs.	Oats and bran, lbs.	Salt, ozs.	Urine, lbs. and ozs.	Specific gravity.	No. of urinations.	Weight of horse.
1894 Dec. 5	A.M.	16°.5	100°.2	16	6.5	2				2		100°.6	9.5	6	2				0	
	N.	39	100	27	6.6	0				2		100.8	9.5	7	0				1	
	P.M.	37	100.2	6.6	7	2	1	8-1	1056	2	1035	99.4	8.6	7	2	1	1-5	1061	0	1100
6	A.M.	38	100.2	13.5	6.2	2				4		100.4	11.6	6	2				2	
	N.	45	100.4	13.5	6.5	0				1		100.4	13.5	7	0				0	
	P.M.	41	100.6	18	7	2	1	8-1½	1056	2	1033	100.4	9	7	2	1	3-0	1055	0	1101
7	A.M.	20	100.4	32.2	6.	2				4		100.4	9	6	2				3	
	N.	37	99.8	10	6.2	0				1		100.4	9.5	7	0				0	
	P.M.	36	100.6	8	7	2	1	7-1	1057	2	1042	100.2	11	7	2	1	3-14	1059	0	1102
8	A.M.	32	100.2	32.5	6.5	2				4		100.2	10	6	2				2	
	N.	26	100	9	6.8	0				1		100.6	17.5	7	0				0	
	P.M.	25	100.4	4	7	2	1	5-7	1060	2	1045	100.2	10	7	2	1	8-3	1060	1	1107
9	A.M.	24.5	100	36	6.5	2				4		100.6	15	6	2				3	
	N.	31	100.4	1	6.5	0				1		100.6	6.5	7	0				1	
	P.M.	32	100.4	25.5	7	2	1	8-8	1059	2	1047	100	15	7	2	1	1-2½	1053	0	1105
10	A.M.	31.5	100	7.5	6.5	2				4		100.4	6	6	2				3	
	N.	32.5	100.2	19	6.5	0				1		100.4	15.5	7	0				1	
	P.M.	32.5	100.4	12.5	7	2	1	7-7½	1056	2	1044	100.2	10	7	2	1	5-3	1061	1	1107
11	A.M.	30.5	100	27.5	6.5	2				4		100	20	6.5	2				4	
	N.	33	100.2	10.5	6.5	0				2		100.4	5	6	0				1	
	P.M	32	100.4	9	7.	2	1	7-13	1060	1	1047	100.2	6	7	2	1	4-2	1065	1	1116*
12	A.M.	30	100.4	51.5	7	2				5		100.2	25	6	2				5	
	N.	31	100.2	9	6	0				2		100.4	11	7	0				1	
	P.M.	27	100.2	12	7	2	1	11-0	1052	2	1050	100	14	7	2	1	5-13	1066	2	1117
13	A.M.	11.5	100.2	36.5	5	2				7		100.4	16	6.5	2				5	
	N.	32	100.4	7	5	0				2		100.4	24	5	0				1	
	P.M.	32	100.6	13.5	7	2	1	15-5	1045	2	1052	100.8	5.5	7	2	1	11-3½	1053	1	1115
14	A.M.	26.5	100.6	38	5	2				7		100.4	18	5	2				6	
	N.	38	100.6	12	5	0				2		100.6	15.5	5	0				1	
	P M.	32	100.4	10.5	7	2	1	17-6½	1043	2	1055	100.6	12	5	2	1	13-15	1054	1	1117
15	A.M.	15	100.4	32	6.5	2				7		100.2	10	5	2				5	
	N.	23	100.6	14	5	0				2		100.6	14	6.5	0				1	
	P.M.	25	100.2	15	7	2	1	25-9	1038	2	1050	100.8	15	5.5	2	1	18-½	1040	1	1118
16	A.M.	20	100.4	37	5	2				6		100.6	19	5	2				5	
	N.	22	100.2	8	4.5	0				2		100.4	13	5	0				1	
	P.M.	14	100.2	12.5	6	2	1	28-6	1028	2	1050	100.6	11	6	2	1	25-6	1031	2	1106
17	A.M.	10.5	100.4	32	7	2				5		100.2	7	6	2				5	
	N.	25	100	12.5	5	0				2		100.6	22	6	0				1	
	P.M.	31	100.4	25	5	2	1	27-1	1030	2	1047	100.6	11.5	7	2	1	20-1½	1040	2	1104

18	A.M.	18	100.2°	16.5°	6.5	2				6		100°	14	5	2				2	
	N.	30	100	27.5	5	0				1		100.4	11	5	0				2	
	P.M.	29	100.5	7.5	6.5	2	1	17–5	1035	5	1050	100.6	13	7	2	1	21–5½	1039	1	1110
19	A.M.	20.5	100	33	5.5	2				4		99.6	95	6.7	2				3	
	N.	40	100.4	22	6	0				3		100.4	24	6.5	0				2	
	P.M.	38	100.4	16	6.5	2	1	19–2½	1040	2	1049	100.6	6.5	7	2	1	25–6½	1040	1	1110
20	A.M.	31	100	13.5	6	2				4		100.4	13.5	6.7	2				3	
	N.	41.5	99.4	28	6	0				2		100.8	20	6.5	0				1	
	P M.	43.5	100.6	8.5	7	2	1	21–2½	1040	3	1054	100.6	7	6.8	2	1	18–15	1048	2	1115
21	A.M.	19	100.4	28	6	2				4		100.6	17½	6.7	2				3	
	N.	14	99.2	19	6	0				3		100.4	7.5	6	0				2	
	P.M.	11	100.8	11	7.2	2	1	17–2½	1043	2	1055	100.1	17.5	6.8	2	1	14–10.5	1050	2	1120
22	A.M.	8	100.4	37	6.8	2				4		100.4	15	6.2	2				4	
	N.	17	99.8	15.5	6	0				2		100.4	10.5	6.2	0				2	
	P.M.	19	100.6	21.5	6.8	2	1	13–6½	1045	1	1054	100.2	10	7	2	1	20–9½	1060	1	1118
23	A.M.	27	100.6	18.6	5.8	2				4		100	14	7	2				5	
	N.	32.5	99.8	32	6.5	0				1		100.8	25	6.2	0				2	
	P.M.	32.5	100.6	14	6.5	2	1	20–14½	1045	2	1049	100.8	8	6.7	2	1	17–3½	1051	2	1120
24	A.M.	15.5	100.4	28	6.5	2				3		100.4	10	6.3	2				4	
	N.	15.5	99.8	14	5	0				2		101	16	6	0				8	
	P.M.	9	100	30	6	2	1	23–10	1040	3	1047	100.8	9	...	2	1	21–13	1045	3	1117†
25	A.M.	3	100.6	7	7	2				4		100.6	7	7	2				4	
	N.	6	100.6	26	6.8	0				1		100.6	15	7	0				1	
	P.M.	8	100.4	3.5	6.8	2	1	16–15	1038	2	1050	99.8	2	7	2	1	16–6	1045	2	1116
26	A.M.	1	100.2	5	6	2				8		100.6	7	6.7	2				3	
	N.	—3.5	99.4	37	6.6	0				1		100.2	13	6.5	0				2	
	P.M.	—11	99.4	2	7	2	1	15–15	1039	2	1055	......	7	7	2	1	9–2	1060	1	1117
27	A.M.	—20	99.6	25	7	2				2		100.2	8.5	7	2				3	
	N.	—16.5	100.4	24	6.2	0				2		100.4	16	6.7	0				2	
	P.M.	—5	100.2	2	6.8	2	1	10–15	1048	2	......	100.8	16	7.2	2	1	12–7	1055	2	1120
28	A.M.	1	100	4.5	6.8	2				3		100.4	2	6.8	2				4	
	N.	18.5	100	37	6.6	0				1		100.6	16	6.8	0				1	
	P.M.	13	100.2	2	7	2	1	9–11	1044	2	......	100.8	6	7	2	1	7–10	1062	2	1116
29	A.M.	14	100	12	6	2				2		100.2	13.5	7	2				2	
	N.	14	101	27	7	0				2		101	13.5	7	0				2	
	P.M.	7	100	1	7	2	1	11–5	1047	2	......	101	5	...	2	1	9–12½	1062	2	1114‡
30	A.M.	6	99.6	32	6	2				4		100.8	10	6.8	2				4	
	N.	9.6	99.6	20	7	0				2		100.8	15	6.5	0				2	
	P.M.	1	100	15.5	6	2	1	10–1	1046	2	......	101	16.5	6.8	2	1	10–7	1054	3	1117
31	A.M.	7	99	19.5	6	2				4		100.8	19	6.5	2				5	
	N.	12	100	17	6	0				2		101	14	6.8	0				2	
	P.M.	6	100.4	16	7	2	1	19–15	1042	8	......	100.6	13	7	2	1	16–11	......	3	1117
1895 Jan. 1	A.M.	......	100	15	7	2				5		100	12	6.6	2				5	
	N.	......	100.2	24	5	0				1		100	18	6.6	0				2	
	P.M.	......	......	25	7	2	1	18–11	1047	2	......	101.8	10	7	2	1	15–15	......	3	1120‖

* Hay changed to first feed of millet. † Millet to hay, first feed. ‡ Hay changed to millet, first feed.

‖ Millet was just nicely headed out, secured in good condition. Records were taken at 6 A.M., 12 M., and 6 P.M.

About two weeks afterward the owner told me she had gotten so she could not stand in slings, had gotten down so she could not rise, and he had destroyed her.

A few days later he came to me with the information that another of his horses in the same stable was affected like the first one, and that he had turned this one out on the marsh to die. On questioning him, found he had been feeding millet cut green, and that the mare had had the same food.

I advised him to allow the horse to remain where he was, but to feed him sufficiently and not to allow him any millet. This he did, and on April 24th I saw him at the stable (a b. g., weight about 1300 pounds).

He was apparently all right, with the exception of some difficulty in rising. He is now working, and has been for over a week.

The stable was situated in the city, and the sanitation of it bad, the ceiling low, and the two horses were stabled along with about a dozen cows.

I regret that I did not have an opportunity to make an autopsy upon the mare; nevertheless am of the opinion that they were genuine cases of the millet disease, and that this disease and osteoporosis, although similar, are entirely distinct. I would be pleased to hear from you on the subject.

Yours very truly,
H. D. PAXSON.

For the purpose of getting information from persons who had used millet for horses, we sent out on July 1, 1896, the following circular:

No. 1. Have you used millet for horses as a coarse food during the winter season?

No. 2. Were the horses confined in the stable or were they allowed to run out?

No. 3. About how much millet did you feed per feed?

No. 4. How many times a day?

No. 5. When did you last use millet as an exclusive coarse food?

No. 6. Do you believe that millet is one of the best foods for horses?

No. 7. If not, why not?

No. 8. Shall you continue to feed millet to your horses in winter?

No. 9. If any bad effects resulted from the feeding of millet, describe them in as few words as possible.

No. 10. Please answer and return as soon as you conveniently can.

Yours respectfully,
T. D. HINEBAUCH.

We sent out fifty circulars, but up to the present time have received returns but from four.

CIRCULAR No. 1.

No. 1. Yes.
No. 2. They are allowed to run out.
No. 3. What a horse would eat in an hour.
No. 4. Once every day, and a part of the time twice.
No. 5. About June 1st.
No. 6. No.
No. 7. It appears to weaken their kidneys.
No. 8. No.
No. 9. On a horse which was fed on millet from October 1st until April 1st stiffness of the muscles, weakness of the back and kidneys, and falling away in flesh. This horse was put on grass on May 20th, and on July 1st he was as well as ever.

CIRCULAR No. 2.

No. 1. I have.
No. 2. Allowed to run out.
No. 3. A small forkful for a pair of horses.
No. 4. Twice.
No. 5. Five years ago.
No. 6. I do not.
No. 7. It affects the kidneys too much. My horses on the plow made water nearly every mile.
No. 8. I shall not. Had rather feed straw.
No. 9. My horses were fat when commenced to use. Did not stand the work as they did before or since. Did not seem to have strength.

CIRCULAR No. 3.

No. 1. Used Hungarian grass, and worked the horses on it.
No. 2. In stable nights, yard day-time.
No. 3. All they would eat.
No. 4. Once and twice.
No. 5. For the last four years. Am feeding it now.

No. 6. No better than good hay.

No. 8. Yes.

No. 9. I do not raise millet; I raise Hungarian. At our division we feed it wholly. Nothing else for coarse feed. Have fed it to mares heavy in foal all they would eat. Have not lost a horse in nearly two years. Have had no bad results from feeding it.

No. 4 (Letter).

I lost a mare this spring which I fed millet about two months last fall, then straw until April 1st. I then fed her millet (which was cut green) until June 1st, when she died.

Dr. Taylor, of Hillsboro, examined her, and found death had been caused by a rotting away of the bones in her right side. Eight of her ribs were broken, some in three or four places. Whether this was caused by millet or not he did not know.

She delivered a colt about a week before she was taken sick, which is alive and in a fine, healthy condition.

She was taken sick Wednesday and died on Sunday morning.

Respectfully,

ED. BURKE.

No. 5.

Instead of replying to the questions, I received the following communication from Charles Schwarz, Addison, N. D., August 12, 1896:

T. D. HINEBAUCH, V.S.

DEAR SIR: I will write you my experience in feeding millet hay, hoping that it will be more satisfactory than the answers to the questions. I have fed millet hay to horses more or less for the last ten years. I used to think that people did not know what they were speaking about when they said millet was injurious, but a year ago last April I had a mare with foal. I noticed she was lame on the left hind-leg, and was growing worse, until I had to get Dr. Walker, from Casselton. He thought it might be due to millet hay, so I quit feeding millet and put her in pasture. She improved right away until she was all right. After the colt was foaled I kept her in the barn and fed millet hay again, mostly to find out if she would get lame again. In about two weeks she was so lame on all four legs that she could hardly walk; but as it did not seem to hurt the other horses I kept on feeding it to them, until in the fall a good five-year-old horse also got lame, in a manner similar to the mare, in the spring. I had to quit working him. It took longer for him to get over the lameness than it did the mare. He was lame all winter, but is all right now. Last winter I noticed as soon as a horse got affected by feeding millet he would look gaunt, as though he did not eat enough, and would then begin to fail in flesh.

I thought I noticed that it never seemed to hurt my colts, so after I found I had to quit feeding it to my work horses I thought I would keep on feeding the colts. I had a fine two-year-old that I fed millet to with the rest of the colts. He was fat and plump in the fall, but began losing flesh. Still I kept on feeding until he got lame like the other two. I stopped feeding the millet and fed straw and ground feed, but he was already so bad that he did not improve. He gradually grew worse, with swelling of the joints, and when I killed him the joint-water had puffed up all the joints so that they were hard and tense and broken through in some places and formed large bunches under the skin.

I also have a small Arabian pony that we had to lift up all winter from the effects of feeding millet, but he is now over it, and all my horses that have lived are all right now.

I will not feed millet hay to horses again.

Yours very truly,
CHARLES SCHWARZ.

I have been called in consultation with Dr. Taylor on some millet cases, and asked him to write up several of the cases as he saw them, and they are as follows:

Case No. 1. May 6, 1895, I was called to Mr. Erickson's farm to see a mare weighing about 1200 pounds, and also a two-year-old colt, both of them sick at the same time. I found the mare standing, holding upright front foot, appearing in great pain, trembling, fetlock-joints swollen and very tender to the touch. This mare had been fed on millet about two months, all she wanted to eat. She was heavy in foal. I treated her by giving soda salicylate three times a day in two-drachm doses, and had the leg bathed with hot water and bandaged. I was called again on the 8th, and found the mare lying on the left side, trying to foal. I removed the colt with little difficulty. The colt was in a natural position. After the colt was removed, the mare's ribs seemed to fall in. On examination I found seven ribs broken, some of them in two places. On turning her over I found six ribs broken on the other side, and in the right fetlock-joint the ligaments had given away, so you could turn the hoof up forward and touch the knee. On post-mortem I found the ribs very soft and spongy. I could break them in my hand without difficulty. The ligaments of the joint had given away from the bone, leaving small fragments of bone attached to them. The two-year-old colt had to be lifted up on his feet. His joints were all swollen and very painful. He was destroyed a few days after I saw him. Did not hold post-mortem. Both horses were fed millet.

Case No. 2. May 30, 1896, I was called to Mr. Ed. Burke's farm, Blanchard, N. D., to see a gray mare, eight years old, weighing 1200 pounds. She was lying on her side, apparently in great pain. When assisted to her feet she would not stand nor put any weight on the right front leg. The fetlock-joint was swollen some and very tender to the touch; she was breathing hard. On examination found seven ribs broken, three of them in two places, and the ends of the ribs had penetrated the lungs. It being too late to hold post-mortem, I returned the next morning and found that the ribs were very easily broken, and the contents of the fetlock-joint was very dark colored, showing the presence of blood. The tissues were not ruptured in any way. This mare had been fed millet all winter and turned out into the yard every day until seven days before she was taken sick. At that time she foaled a healthy colt and remained in a box-stall for seven days, when she was turned out to pasture. She was noticed about an hour later walking very stiff, and shortly after was lying down, and had to be assisted to her feet. She was then removed to a large hay-shed with lots of bedding. The owner told me that she was very restless, lying down most of the time during the afternoon. I was called in the evening.

The same man had two other horses—one affected in the front feet, the other in the stifle and hind-foot. They recovered with the treatment of salicylate of soda when turned out to pasture.

I have never seen any of these cases except in horses that have been fed on millet, and am inclined to think that millet is an active agent in destroying the natural texture of the bone.

Case No. 3. May 11, 1896, I was called to Caledonia to James Patten's farm; found five cases of lameness, all of which had been fed on millet all winter, that being the only hay that Mr. Patten had. The disease did not show itself to any perceptible degree until he began to work them. During the first few days they gradually became affected—some in the joints of the front-legs, others in the joints of the hind-legs, and one all over apparently. She could be made to stand but a few moments at a time, and died after a week's illness. The balance of the horses recovered entirely.

An examination of the kidneys of No. 3 by Dr. Formad shows that there was chronic inflammation with a tendency to fatty degeneration.

We could go on and multiply cases almost indefinitely that have been due to the feeding of millet. The cases are all of a similar nature, and the lesions differ only, as it were, in location and severity. One animal may be attacked in the fore-extremities, another in the hind, and still another all over. There is one thing, though, that we have settled definitely, and that is with regard to the increased action of the kidneys. As long as the kidneys are active no bad results follow; when they cease to act then we have the beginning of the pathological lesions which have been described in a former paper. Quoting from this paper: "When we call to mind the physiological conditions that exist in azoturia and compare them with the conditions which exist in these cases, where the kidneys also fail to perform their functions, we find but little difference. In azoturia we have paralysis of the hind-extremities usually. In millet disease paralysis begins first at the hind-extremities and gradually extends until it includes the fore-extremity, and later to head and neck. We have seen cases of paralysis, due to the feeding of millet, where the horse was unable to move any portion of the body or its members. If the foot was placed in a certain position, it remained there until again moved artificially. The horse seemed to possess no power whatever of even moving a muscle."

In conclusion, I would like to call your attention to a comparison of Experiments I. and II., using grammes and averages. For detailed accounts of Experiment I. see *Proceedings of the Thirtieth Annual Meeting of the United States Veterinary Medical Association.*

TABLE I.—COMPARING EXPERIMENTS I. AND II., USING GRAMMES AND AVERAGES.[1]

Animal.		No. 1.	No. 2.	No. 3.	No. 4.	Nos. 1 & 2.	Nos. 3 & 4.
Urine	With hay,	8244.3	6377	3317.11	4611.48	7310.65	3964.3
	With millet,	14404.9	12258	7301.69	8097.71	13331.45	7699.7
Specific gravity	With hay,	1041.6	1046	1058	1050	1043.8	1054
	With millet,	1038.2	1037.3	1051	1043	1037.75	1047
Total solids . .	With hay,	726.18	610.9	323.76	393.7	668.04	358.78
	With millet,	1127.9	954.9	507.23	415.61	1041.4	461.42
Ash	With hay,	174.48	171.33	174.86	152.82	172.9	163.84
	With millet,	272.25	268.45	247.5	220.32	270.35	233.91
Nitrogen . . .	With hay,	118.07	98.59	32.92	41.35	108.33	37.14
	With millet,	131.08	121.35	51.14	33.79	126.23	42.47

[1] Veterinary Magazine.

Table No. 2 shows the percentage relations of Experiment No. 1 and No. 2.

TABLE II.—SHOWING PERCENTAGE RELATIONS OF EXPERIMENTS I. AND II.

Animal.		Harry and Jim.	Nos. 3 and 4.	Nos. 3 and 4. Per cent. of Nos. 1 and 2.	Difference of Nos. 3 and 4 vs. Harry and Jim.
Urine	With hay,	7310.65	3964.3	54.22	3346.35
	With millet,	13331.45	7699.7	57.75	5631.75
Specific gravity	With hay,	1043.8	1054	100.98	0.0102
	With millet,	1037.75	1047	100.89	0.00925
Total solids . .	With hay,	668.54	358.73	53.65	309.81
	With millet,	1041.4	461.42	44.31	579.98
Ash	With hay,	172.9	163.84	94.76	9.06
	With millet,	270.85	233.91	86.52	36.44
Nitrogen . . .	With hay,	108.33	37.14	34.35	71.19
	With millet,	126.22	42.72	33.65	83.75

Table No. 3 shows the average temperature during experiment.

TABLE III.—SHOWING AVERAGE TEMPERATURE DURING EXPERIMENT.

	No. 3.	No. 4.
Hay, first period	100.32°	100.23°
Millet. first period	100.48	100.27
Hay, second period	100.59	100.13
Millet, second period	100.76	99.98
Hay, both periods	100.46	100.18
Millet, both periods	100.62	100.13
Advantage of hay	+0.16	—0.05

VETERINARY DENTISTRY.

By L. A. MERILLAT, V.S.

The chief object of presenting a paper on this subject to this Association is to direct the attention of its members and the veterinary profession generally to a long-standing abuse—an abuse which stands before us to-day as one of the questions deserving the attention of this representative body of veterinarians—the practice of veterinary dentistry by persons not veterinary surgeons.

While it is quite impossible to ascertain the exact number of so-called veterinary dentists in the United States, I am able, through the assistance of a number of veterinarians, to locate two hundred and twenty plying their vocation east of the Mississippi. Of this number only those who practice this specialty exclusively as a means of livelihood are included, and only seven have college degrees. No mention is made of the many farriers and horsemen who never lose the opportunity to practise dentistry when permitted. In the large cities we find one veterinary dentist to every twenty veterinary surgeons. It must be remembered that prior to the panic of 1893, when horses were more valuable, this number was almost doubled; and with the return of prosperity to our profession their numbers will again reach alarming proportions.

In a large practice established for more than twenty years we find 56 per cent. of the gross income derived from the practice of medicine; 32 per cent. from operations on the locomotory apparatus; 8 per cent. from hospital practice; 4 per cent. from minor operations; 3 per cent. from miscellaneous operations; and 7 per cent. from dental surgery.

We speak of the great field of the veterinarian, yet our field of usefulness can ill afford a depredation of at least 5 per cent. by the intrusion of a specialist who has neither interest nor regard for the veterinary profession. It is not the veterinarian with a large practice, nor the occupant of a lucrative position, who is directly interested, as the sufferer is the young practitioner who is laboring faithfully for a small clientage.

With this condition, demonstrated by the above statistics growing upon us, we should endeavor to apply a remedy.

For the veterinary dentist who is duly qualified and who is a specialist from choice we must have every regard, yet it is doubtful if ours is a profession for specialties. But since this class of dentists are few, let us direct our attention to the majority.

The veterinary dentist learns his trade—I will say trade—by cohabitation. He is the product of his kind. He requires only two or three months' practice with a fellow dentist to qualify. He takes his place among his competitors with a set of highly polished instruments as a recommendation. He plies his vocation among the unsuspecting, and is addressed as "Doctor." With this new cognomen as a stimulus he soon finds an office in a livery, boarding, or sale stable, or a race-track. As he becomes more skilful his practice improves, and he is soon among us, a full-fledged veterinary dentist. His first notice to the public invariably contains a half-tone cut of the "professor" in action, together with literature lauding the great benefits derived from his particular operation, which is performed without the use of gag, speculum, or confinement of any nature. He lauds particularly his ability to domicile the most vicious animal, and undoubtedly firmly believes his operations will prevent, relieve, and cure a large number of habits and diseases which the veterinarian can often trace to entirely different sources.

Let us, however, not overlook the fact that he has justly won the good-graces of many a horseman by his skilful services, and that he is more skilful in the use of dental instruments than the average veterinarian. When we open our eyes to the fact that we are being out-classed, in the eyes of a critical public, by an empiric; when we become more devoted to our training in this branch of surgery; when we become more skilful with the use of dental instruments, we will witness the passing of the veterinary dentist, and not until then. As long as the veterinarian remains oblivious to this fact, so long will this specialist be among us.

True, in those States where veterinary associations have worked so unceasingly for favorable legislation and have obtained recognition by legislative bodies, the remedy is at hand by simply enforcing existing laws, which plainly cover this branch of surgery. But we must doubt the propriety of forcing our services upon the public so long as the veterinary dentist demonstrates his superiority over us.

It is our experience in this case, as in many others, that his lack of scientific attainments receives no condemnation from the public, but, on the other hand, lack of dexterity on the part of the veterinarian who obtains the same results in his own way is duly condemned, and he (the veterinarian) is often branded as a "bungler." In our attempt to restrain the acquisitive desires of this specialist we must not forget that the horse-owning public is favorably impressed with his usefulness in many localities.

In the large cities, where horses are numerous, the practice of this specialty often proves a lucrative pursuit, and some dentists have attained a good-standing in their community; but since they would ignore the necessity of attending a regular veterinary college to qualify, we owe them no recognition, and to organize schools for veterinary dentistry could never meet the approval of the veterinary profession. When we make our claim that specialities of this kind have no place in our profession, the argument may be advanced that only a few years ago schools for the study of human dentistry were few, and the human dentist received his instructions from the practitioner much the same as the veterinary dentist does to-day. The course of study in these dental schools was short and unsatisfactory, dwelling particularly upon mechanical dentistry without regard for anatomy, physiology, or pathology, and that it is comparatively of late years that human dentistry occupied anything like a properly organized position among the different departments of minor surgery. For long it was practised to a large extent as a superadded means or livelihood by persons engaged in other pursuits, much the same as the farrier and "handy horseman" practises veterinary dentistry to-day. The watchmaker, the blacksmith, and often the barber was the village dentist, and even in large cities, practising under the very shadow of our universities and medical schools, was found this class of dentists. But to-day the practice of human dentistry has a place among the professions; their schools are a part of our universities, with a curriculum covering three long sessions, embracing the study of anatomy, physiology, pathology, bacteriology, and comparative anatomy.

That such a change can never come over the practice of veterinary dentistry is easily foretold. As veterinary dentistry is to-day, so will it always be. To remove ordinary irregularities, extract troublesome molars, and perhaps trephine the sinuses, is and always will be the limit of the veterinary dentist's usefulness. And as the operation is one demanding muscular strength and manual dexterity more than anatomical or surgical knowledge, and often is performed as successfully by the irregular as by the regular practitioner, this speciality has no attraction for the well-to-do veterinarian. It is thus consigned to the uneducated and the charlatan, who do not fail to parade their specialty as sufficient to confer a surgical status upon them and entitle them to the designation "veterinary dentist" —a designation which is applied without discrimination or distinction to the unqualified as well as the qualified veterinary dentist

The only change we may ever expect to note, and for which we should earnestly hope, is the practice of this branch of veterinary surgery by the regular qualified veterinarian, who, through improper training, disregard, and thoughtlessness, has consigned a useful and profitable branch of his profession to an empiric.

In this short discourse, which may be criticised as being rather "commercial," I have attempted to demonstrate the fact that the practice of veterinary dental surgery is too limited to be recognized as a specialty, yet of sufficient importance to deserve more attention from the veterinary practitioner.

In our sumptuous attempts to develop something new, let us not neglect the old.

This paper will be continued under the head of "Operative Dental Surgery." The literature on this subject is too voluminous to be presented at this meeting, but will be given to the veterinary journals for publication.

SOME POISONOUS STOCK FOODS.

By N. S. MAYO, V.S.

Recent investigation of diseases has emphasized the importance of toxic substances in their production. Most investigators have been at work in the wide and fascinating field which may be included under the ptomaïnes and leucomaïnes, and remarkable advances have been made. Yet there is another region which has furnished material for investigation and experiment for ages past; a field which will probably widen rapidly with the rapidly widening domain of organic chemistry. This field includes those toxic substances found either naturally, or, I may say, sometimes accidentally, in the phenogams or flowering plants. Toxic substances as found in plants may be either organic or inorganic. Organic poisons may be formed by the plant either in its anabolic or ketabolic changes. The inorganic poisons found in plants are substances taken from some surrounding medium, which may be stored, either temporarily or permanently, in the plant-tissue. Such substances must, of course, be soluble.

The organic poisons of plants have usually a highly complex chemical composition, with nitrogen forming the base, in the nature of an alkaloid; but toxic substances may occur as glucosides and also probably in other forms.

It seems probable also that toxic organic substances may occur in plants at certain stages in their growth, which are not ordinarily found and may not be natural to the plant—that is, in the metabolism of the plant combinations of chemical elements may occur which may be toxic, which later, as the chemical composition is changed, may be harmless or even beneficial when eaten by animals. This I may illustrate by some of the saccharine sorghums. Practical experience in the feeding of sorghum seems to demonstrate that in certain stages of its growth sorghum, especially second-growth sorghum, possesses very active toxic substances which earlier or later in the growth of the plant do not occur.

During the past two years I have been devoting some attention to what may be called an accidental poison which sometimes occurs in the cornplant. By an accidental poison I mean a substance which may be present normally in small amounts, but does not, except under favorable circumstances, occur in sufficient quantities to produce serious results when the plants are eaten by animals. Two years ago seven out of twelve head of cattle died during one night from the effects of potassium nitrate, which was contained in four armfuls of cornstalks. These cornstalks had been grown upon very rich soil, and a large amount of potassium nitrate—25 per cent. of the dry weight of the stalk in some instances—had been stored within or deposited upon the cornstalk. It was then thought that poisonous quantities of potassium nitrate would only be found in corn grown on soil that had been heavily manured; but since then I have found potash present in poisonous quantities in cornstalks grown without fertilizer upon bottom and upland soils.

The authorities on poisons, in giving the effects produced by potassium nitrate in poisonous doses upon human subjects, state that there is gastro-enteritis followed by paralysis. In cases where cattle have taken poisonous quantities I find the symptoms differ materially with the conditions under which the poison is taken. If the potassium nitrate is taken, well distributed through a large amount of food, death takes place by paralysis beginning at the posterior extremities, associated with a trembling of the voluntary muscles, with practically no symptoms of gastro-intestinal irritation. If the potash is taken with little food and considerable water, there is associated with the paralysis morbid gastro-intestinal irritation and diuresis. Less than eight ounces of potassium nitrate will produce fatal results in adult cattle if given upon an empty stomach.

Poisonous quantities of potassium nitrate in cornstalks often occur in patches in cornfields not recognized by any noticeable difference in the growth of the corn. The easiest way to detect the presence of the potash is by lighting a piece of the dry stalk with a match, the characteristic deflagration of the potash occurring. It can also be recognized by the taste, by chemical tests, and in some cases by the naked-eye appearance of fine crystals upon the cornstalk.

The presence of potash in poisonous quantities in the cornplant may be influenced by climatic conditions. In this State there is often a severe period of dry weather about the time corn is maturing. This may check the metabolic process in the plant and thus favor the deposition of potassium nitrate.

The presence of potassium nitrate in the cornstalks may possibly offer a solution to the well-known disease of cattle.

COTTONSEED MEAL.

Two years ago, owing to the failure of the corn crop in this State, a large amount of cottonseed meal was used for feeding cattle. It is the common practice to run hogs in the feed yards with fattening cattle, that the hogs may utilize the undigested and scattered food that would otherwise be wasted. For about the first thirty days hogs following cattle fed cottonseed meal would do nicely, gaining rapidly in flesh; then they were stricken with some peculiar malady which destroyed large numbers of them very suddenly, with practically no premonitory symptoms of death. The hogs would be found dead or dying. Autopsies revealed congestion of the lungs and small intestines and inflammation of the heart.

The Kansas Experiment Station, in some comparative feeding tests with pigs, found that those fed on a cottonseed-meal ration made remarkably fine gains for about the first five weeks, and then would die very suddenly, the autopsies revealing the pathological conditions previously mentioned. Bacteriological and microscopical examinations failed to give satisfactory results. In watching these experimental pigs as they were being weighed I noticed the pigs on the cottonseed-meal ration were easily distressed on being exercised, there seeming to be a weakness of the heart's action. A person could by close observation pick out the pig that would probably die next.

Cattle are not so seriously affected by the cottonseed meal. They make excellent gains for about three months, and then stock-feeders say they seem to be demented or partially blind, so that stockmen make it a rule not to feed cottonseed meal to fattening cattle over one hundred days.

The symptoms exhibited and pathological changes produced seemed to indicate the presence in the cottonseed meal of an alkaloidal substance. I began a chemical examination of the meal after Dragindorff's method, and soon found evidence of a nitrogenous base present in such quantities that one was at a loss to account for the comparatively mild results that followed the consumption. I found later that there are two alkaloidal bodies present in cottonseed meal. Cholin was discovered in 1881 by Professor R. Böhm in a cattle food prepared from cottonseed meal, which had proved poisonous to young cattle as a diet, and in 1882 Professor Rittenhausen and Dr. Weger discovered another nitrogenous base—betaine. Betaine is considered by most authors to be innocuous.

Professor Wiley informs me that Mr. Maxwell, in his investigation of cottonseed meal, found nearly five times as much betaine as cholin. Dr. Wiley thinks that the betaine is formed first, and that cholin is an oxidized product. The presence of two alkaloids, one innocuous, present in considerable quantities, the other toxic, but present in small quantities, accounts for the abundant reaction in testing for alkaloids and the comparatively long time required in feeding cottonseed meal to produce serious results.

There are indications, however, that these two nitrogenous bases are not the only injurious substances which may be present in cottonseed meal, and a further study of this food may give important results.

About April 28, 1896, two outbreaks of poisoning of cattle occurred, five dying at one place and six at the other. All the animals died within thirty-six hours from the effect of some powerful depressant. They were literally "tired to death." In both outbreaks the cattle were fed hay and grain at a corral, but had access to fields where vegetation was starting. There were two plants to which the poison could be attributed—the "cocklebur" (xanthium canadense) and the "cowbane" or (cicuta maculata).

The "cocklebur," a very common noxious weed, is occasionally reported by farmers to be poisonous to hogs, and in the last report of the Bureau of Animal Industry another species is reported to be poisonous to stock in Australia. So far, however, tests and experiments made by Professor Failyer, chemist at the Kansas Experiment Station, and myself have given negative results. While these experiments are not conclusive, I am inclined to the opinion that the "cocklebur," because so common and obnoxious, is made the scapegoat for other less common but more toxic plants.

In both of these outbreaks of poisoning the cattle died evidently from eating the young tops of the "wild parsnips" (cicuta maculata). The poisonous principle of this plant is known as cicutoxin, a powerful depressant, very similar in the physiological action to conium or hemlock, to which plant it is quite closely related botanically.

Experiments are being made to determine more of the toxic nature of this plant and of others which are popularly reported to be more or less poisonous to animals, among which may be mentioned the buckeye (æsculus glabra), the "jimson" weed (datura stramonium), and "loco" weeds, but the results are not yet sufficient to warrant conclusions.

TOE-CLIP INJURIES.

By JAMES A. WAUGH, V.S.

These are due mainly to accidental errors in farriery, and are caused generally by excessive paring or cutting away of the antero-inferior part of the sole and cutting a nick in the toe of the hoof-wall for the reception of the toe-clip, which is occasionally hammered into position firmly by a large hammer while the foot is resting on the ground surface or shop floor. It occurs in one or both front-feet, and occasionally one or both hind-feet are affected, but it is most common in fore-feet. I have seen it resulting from small, medium, and large toe-clips. This peculiar form of injury generally causes considerable uneasiness and altered action in the affected foot or feet within a few days or a week after shoeing, and if neglected or overlooked for several days may result in extensive inflammation, exudation, and suppuration, followed by unfavorable results or even death. Horses and mules are alike sufferers, but the former are less able to withstand the pain and annoyance of it. Mules usually make a favorable but slow recovery. The most prominent symptoms are apparent uneasiness and pain in the affected foot or feet, and altered or modified action in motion, or changed position at rest. The condition and appearance of shoes will assist in confirming the diagnosis. The advanced or well-marked symptoms are incidental with the above-mentioned, but in an aggravated form, and where only one fore-foot is affected there will be a well-marked disinclination to bring the foot and limb backward, and the lameness and suffering will appear greatest or severest when the foot is brought back to a level or line with its mate and bearing equal weight. When at rest the foot is elevated at the heel and rests lightly on the toe, while the scapulo-humeral angle is reduced, the elbow much lowered, the knee bowed forward, with back tendons tense and prominent, and the limb apparently lengthened wonderfully. When both fore-feet are affected the patient stands with the feet well set apart and shifts the weight frequently from one foot to the other and rests the limb in a modified form, as above described. The hind-feet are occasionally affected, and are advanced well under the body in early stages if both feet are involved in the injury; but if only one foot is affected, then it is usually elevated and rested off the ground or floor surface. The fore- seem more prone to this injury than the hind-feet. Loose and ill-fitting shoes occasionally slip backward, and the toe-clip works inside the hoof-wall at the union at the anterior part of the sole, and may cause serious injury, especially in aged horses at hard work in cities. I have seen a few cases where the farrier put on short shoes rapidly without fitting, and the toe-clip was allowed to penetrate the part just described, but lameness soon resulted, and we discovered the cause and removed it in due time. It appears that these accidents are most common among company horses and mules shod by incompetent men who have never served a regular apprenticeship to the trade; in fact, never learned it—just picked it up in a half-hearted manner or self-learned style.

Treatment should be based on modern surgical principles. Remove the exciting cause and apply cold or hot baths or medicated poultices to the feet, and, if deemed necessary, put the patient in slings or trevit. It is sometimes necessary to make an opening at the anterior border of the sole and postero-inferior border of. the toe to allow the escape and drainage of serous exudation or pus. The treatment will be a minor affair when one acquires sufficient knowledge and clinical experience enough to diagnosticate a case. It appears there is a dearth of literature on this subject in our veterinary text-books in this country, and I asked for a little information about it from a veterinarian who had been a horseshoer for twenty-five years, also a student at two veterinary colleges, also graduate of one, and he candidly admitted that he had never seen a case or even heard of a case of toe-clip injury, and his father had been a horse-doctor and horseshoer for over sixty years. Therefore, I deem it advisable to present brief reports of several cases from my own private practice.

No. 1. Clyde mare, owned by a capitalist and located on a farm eighteen miles from the city. She was shod and put to work early in the springtime, and, because very lame in the right fore-foot, a city veterinarian was summoned, but was too busy to attend, yet he promised to send the writer, but was dilatory and busy, and overlooked it. Then another one was called, but he, too, was too busy for a country trip, but promised to send a better man. They both called me about the same time, and I hastened out and found the patient suffering severely and unable to eat any food. The foot was very hot and painful, tendons and ligaments tense at the back of the knee; knee bowed forward; elbow lowered; scapulo-humeral angle reduced, and limb apparently much elongated, with the heel elevated and the foot resting lightly on the toe. The blacksmith was a very careful young man, and had removed the shoe and searched every nail-hole for pricks or binds, but without avail, and the foot was poulticed. It was a very fine animal and had excellent feet. The foot-searcher indicated soreness at the union of the sole with the toe, and we pared away until a dark, serous fluid escaped freely from the injured parts; then we injected it with a creolin lotion and dressed with poultice and sack; gave cannabis indica and belladonna internally to relieve the suffering and soothe the patient. Applied hot fomentations and poultices; also creolin lotion, injected freely into the wound. I revisited the case in a few days and found the limb greatly swollen, appetite very meagre, and the temperature 102° F. Hot fomentations were applied freely and frequently to the limb and foot, but treatment proved of no avail, and the patient died in a few days, presumably from septicæmia or pyæmia. I observed that this animal had a very fine, thin skin, with corresponding thin-shelled hoofs and soles, and the blacksmith had used very large toe-clips on account of fearing the shoes would be easily pulled off while working on limestone soil and muddy roads. This case set me to thinking, studying, and working to learn more by careful observation.

Case No. 2. A fine roadster was hired by an oil producer to drive eighteen miles over plank road into an oil field. The horse was so lame the next day on the return trip that it became necessary to leave him at a road-house five miles from the city, and the driver came in and reported the bad condition of the horse. The owner directed me to examine carefully, and, if the horse was permanently disabled with the injury, he would then prosecute under the Livery Act. I found a new set of the much-lauded Good-Enough shoes on the front-feet, and the left fore-feet affected as decribed in this article. I used the whip freely and drove one mile to a blacksmith shop, removed the shoe, and dark serum flowed out, as mentioned, even without cutting, and we enlarged the opening, injected creolin lotion, and plugged the opening with a tent of marine lint; shod with a slipper, drove into the city, then applied the treatment indicated in this article. Result, recovery after twenty-one days' treatment and loss of services.

Case No. 3. A large, heavy draft mule had been newly shod by a strange blacksmith; shoes were removed on account of lameness, and then reapplied by the same man. Owner finally called me in to see the patient after another doctor had been unable to determine what was wrong. The owner even asserted uncharitably that the other man was unable to regain a condition of sobriety or good sight. However, I found pus oozing out at the anterior middle part of the coronary bands and the heels of both fore-feet, great uneasiness, much suffering, and loss of appetite, and the owner expected fatal results in this case, and was angry. Treatment was the same as recommended in this article. Result, recovery after two months' treatment and four months' illness and loss of service, etc.

Case No. 4. Gray gelding, used in an express wagon; patient lame in the left fore-foot or limb, but the blacksmith claimed it was in the shoulder, while others said elsewhere. Owner said a doctor must settle the dispute and save all useless experiments on his property. It was late in the evening and dark, so I decided to withhold my opinion and diagnosis until we could meet at the horseshoer's shop at eight A.M. the next day; but I happened to be out late that evening, and did not get around on time, but the blacksmith removed the shoe, trimmed the sole, and found exudation and pus due to toe-clip injury, and had the case nicely demonstrated on my arrival. Treatment same as outlined in this article, except leather sole was used between foot and shoe for a few weeks after resuming work.

I could cite several other interesting cases, but these will illustrate my remarks and perhaps induce others to make observations and report their cases for professional advancement.

DAIRY INSPECTION.

By FRED. BRAGINTON, V.S.

Mr. Chairman and Gentlemen: The sanitary conditions of dairies, the importance of which is not perhaps fully appreciated by the profession and scarcely at all considered by the public-at-large, seems to me should demand such a thorough inspection that its products should be wholesome and free from contamination with pathognomonic germs.

And how is it to be prevented and the herd kept in health? is the question which presents itself for our consideration.

How often have we in a professional capacity visited dairies during the winter months, and on entering the barns where the cows were confined been nearly stifled by the odors emanating therefrom.

To economize room, the ceilings were sometimes not over six feet in height and a cow to every three feet in width. Allowing for gangways, etc., giving for each cow 180 cubic feet, how long would it take an ordinary sized cow to exhaust 180 cubic feet if no fresh air were introduced from without? The amount of tidal air used in each inspiration may be taken at 240 cubic inches. Twelve respirations being the average per minute, it would take about three hours and a half. Pure air, when completely dried, consists in 100 parts by volume of 20.8 oxygen and 79.2 nitrogen. One hundred volumes of expired air, when dried, leaves 98 volumes, which consists of oxygen 15.4, nitrogen 79.2, carbon dioxide 4.2. In twenty-four hours 1230 cubic feet are breathed and loses 5.4 per cent. of the oxygen. The total quantity of this gas taken up by the lungs in twenty-four hours is 66.4 cubic feet. The amount of carbon dioxide excreted from the lungs being 4.3 per cent. of the volume of air breathed, in twenty-four hours 42.8 cubic feet of carbon dioxide would be exhaled.

It is not so much on account of lack of oxygen in the air that the animals suffer as it is because of the poisoning of the air by contamination with the expired air, which contains other noxious elements than carbon dioxide and far more injurious.

A low estimate of the space required to have the air fairly pure would be 800 cubic feet of space to each animal, and a renewal of 1 cubic feet per minute. Fortunately, many dairymen allow even more than this. Fortunately for themselves as well as for their patrons, these would need very little inspection, but the former is where an ounce of prevention would be worth pounds of cure. For hygiene and sanitary surroundings would be the greatest preventives of the spread of tuberculosis—one of the most dreaded diseases to which the human race is subject.

Tuberculosis may affect any part of the body, and is quite as often found affecting the mammary gland as other parts of the body.

The mammary gland is not a storehouse, but an elaborator, and when the gland becomes infected with any disease it is for that reason far more liable to contaminate the milk than if situated in a more remote part; for this reason particular attention should be paid to the udder.

However, if tuberculosis is present in any part of the body, the bacillus is liable at any time to be carried by the circulation to the udder, and therefore it is at all times a source of danger.

The bacilli of tuberculosis are so constantly present that it is almost impossible for man or beast to escape their inhalation at times. And the only reason why everyone does not become infected is because the tissues in health naturally resist the invasion of the tubercle bacilli, and it is only when the system is vitiated that it becomes a nidus for its multiplication.

Stanchions, which are used by so many, prevent the animal breathing in a natural manner. By compelling the animal to lie always in the same position some parts of the lungs are never naturally expanded with air, and consequently the cells are weakened, and on the inhalation of the bacilli it becomes a focus for its growth or its entrance in the general circulation, and gains a foothold in some other part of the system; where, if the lungs had been naturally expanded with fresh air, the chances would have been for the destruction of the bacilli.

Sunlight and pure air are nature's own bactericide, and are provided by nature with a lavish hand; and why withhold that, the lack of which will allow so many pathognomonic germs to thrive? Some cows are continuously confined within the barn, never being allowed in the sunlight, where, if the owner's attention was properly directed to the value of sunlight in the way of prevention and in many cases the cure of disease, they would do differently. As a rule, dairymen are anxious to have their herds in the best of health. In fact, at their own expense some have had their cows tested with tuberculin.

The cattle on the plains rarely if ever suffer from tuberculosis, and it is doubtful if it were introduced in a herd so situated that it would spread. And why is this so? The inference is that the sunlight, together with the natural mode of living, does not permit the bacilli to multiply. In thickly inhabitated countries these conditions cannot be fully met. The health and happiness of a people depend largely upon its food-supply, and while no single food will supply the entire needs of nature when the constituents of milk are considered, it will be seen that it comes nearest to a perfect food, and in the early life of all mammalia it is the only food suitable to existence.

Most all other foods are not used in the raw state, and for that reason would not require so thorough an insoection, as a temperature at or near the boiling-point is in most cases destructive to pathognomic germs.

Milk being the principal food during infantile life, and which oftentimes must be supplied by the cow, this is the time at which the system is most susceptible to the influence of deleterious foods, and is the time at which the tissues offer the least resistance to the bacilli of tuberculosis as well as to all other germs of disease.

It has been abundantly proven by experimenting with animals by feeding milk containing the bacilli of tuberculosis that it can be readily produced this way. And while adult life has a natural resistance to disease, it is never safe to tempt nature and Providence by taking into the system an unwholesome food. And the only safe procedure is to have the dairies inspected at least once every six months and every cow tested with tuberculin.

It might be saia, Why not eradicate tuberculosis at once by destroying all animals affected and thereby lessen the expense of inspection? If tuberculosis were only found in the bovine, that would be the logical procedure; but when it is remembered that all domestic animals are quite susceptible to its attacks, with the possible exception of the horse, and that about one person in every eight is affected in some manner with tuberculosis, it is evident that it can never be entirely eradicated; and all inspection could do or expect to accomplish would be to prevent its transmission from the bovine to the human. The attendants, if affected with tuberculosis, in many cases do not understand the contagious character of the sputa, and consequently expectorate promiscuously, and thus the provender becomes contaminated; or, again, it may become dried and infect the air, and in this way enter the respiratory tract.

As before mentioned, each cow should ordinarily be allowed 800 cubic feet of space, with a separate stall for each cow and a pure water-supply that the cows may have access to at all times, and the barn scrubbed out as occasion demands, and the excrements removed at a safe distance from the barn.

Some barns are so arranged that the excrements during the entire winter are allowed to be stored in a basement immediately beneath the cows. Where this occurs it is impossible to keep the air free from contamination with escaping ammonia and other noxious gases and odors.

All bedding used for dairy cows should be free from mould and in a clean condition, for many bacteria enter the gland from without by way of the milk-duct and again at milking pass away with the lacteal secretion, where they rapidly multiply and increase in virulence. When milk so contaminated is shipped to the city and retailed, it is but to spread the germs of disease.

Parenchymatous mammitis will cause to be produced large numbers of micrococcus, which, when taken into the alimentary canal, will produce acute intestinal catarrh.

Outbreaks of typhoid fever, scarlet fever, and diphtheria have been traced to a contaminated milk-supply, and in some instances the milk becomes so contaminated by using impure water to cleanse the milking utensils. All seams about tin-pails, etc., should be well soldered and cleansed each time before using with scalding water.

Anyone, by observing the contents of the bottom of a milk-can that has contained milk as ordinarily found on the market will be convinced that cleanliness has not been properly observed.

Cows should not be allowed to stand in stagnant water nor to drink anything but pure water. Where they are allowed to drink stagnant water there is sometimes a morbid condition of the digestive apparatus produced, and they will then drink stagnant water even if they have access to fresh water.

A wholesome milk cannot be elaborated from an unwholesome diet, nor can it be produced by cows that are worried by dogs or kept in constant fear by ill-tempered attendants. What evidence have we that this is a fact!

There is an analogy between all animals, and it is frequently observed in the human subject that nursing the child immediately after a violent fright or fit of anger the infant will become affected with spasms, and in some cases death follows.

Where the cows have been standing in muddy water and their udders become covered with dirt, unless they are thoroughly washed before milking the dirt will of a necessity during milking be brushed by the hands and arms of the milker into the milk.

The udder should be thoroughly cleansed before milking, and at each milking the milker should have at least clean outer garments.

For practical inspection the Federal Government should employ competent veterinarians who are graduates of reputable veterinary colleges.

The people should demand this, for it would be a benefit to both dairymen and consumer—a benefit to the dairymen by creating a better demand for their products.

When a consumer could be reasonably satisfied that the milk which he orders at a hotel or restaurant or buys as peddled out that he is not getting the products of cows affected with actinomycosis, tuberculosis, or any other disease of a contagious nature, he would at once become a large consumer.

There is no need to exaggerate the facts or to ignore the fact of dangers as expressed for fear of creating alarm.

True, most dairymen are too conscientious to sell milk from any cows which they know to be in any way diseased. But some do not realize the dangers of contaminated milk, and others do not care. It is for these that inspection should be so thoroughly performed that the consumer would be absolutely sure of obtaining a wholesome milk-supply.

Primarily, the medical man's duty is to discover the causation of disease, and when possible to remove or render the cause inoperative.

Those diseases which are caused by unwholesome milk and meat need the co-operation of the veterinarian and physician to effect their suppression, as they certainly do to point out their origin.

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